Medicaid Program Evaluation

Working Paper

MPE 7.3

March, 1986

The Effects of The 1981 Omnibus Budget Reconciliation Act on Medicaid

John Holahan

The Urban Institute

Dep[illegible]ent of Health and Human Services
Health Care Financing Administration
Office of Research and Demonstrations

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Project Officer: Gerald Adler

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PREFACE

The Medicaid progam, which finances health care for over 20 million needy Americans, has undergone major changes since 1981. Beginning with the Omnibus Budget Reconciliation Act of 1981 (OBRA), Congress gave the states much more flexibility to change basic parameters of the program, including which groups of people are served, what services are provided, how doctors, hospitals, and nursing homes are paid, and how care can be organized in innovative ways.

The Medicaid Program Evaluation addresses the implementation and impact of selected changes in the Medicaid program to provide knowledge for policy assessment and future legislative change. It is focused on selected issues and policy questions raised by recent legislation.

- Federal Financial Participation
- Inpatient Hospital Reimbursement
- Eligibility
- Case Management
- Home and Community Based Waiver Program
- Cost-Sharing
- Financial Incentives for Family Care
- Medicare DRG Effects on Medicaid
- Synthesis

Together these studies are intended to describe how recent changes have been implemented, and analyze what their effects have been for program services and costs.

This paper provides an overview of program changes and examines the immediate change seen in the post-OBRA period in expenditure trends, types of services and types of recipients. It then analyzes the reasons for observed changes, particularly the relative influence of policies and economic conditions in bringing about slowed expenditures.

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EXECUTIVE SUMMARY

The purpose of this paper is to analyze the changes in the structure of the Medicaid program that occurred in 1982 following the major legislative changes brought about by the Omnibus Budget Reconciliation Act (OBRA). Data from HCFA expenditure reports indicate that increases in Medicaid spending dropped from an annual rate of 17.3 percent in 1979-1981 to about 6.4 percent from 1981 to 1982. These dramatic changes seem to have come about for two reasons. First, the combination of recession and inflation severely affected many states´ ability to finance the program. Second, the 1981 Omnibus Budget Reconciliation Act reduced federal matching grants, limited eligibility for Medicaid and increased states´ flexibility in managing their programs and their ability to control the costs of their programs.

The paper presents important new data on program expenditures for the 1979-1981 period prior to OBRA, and compares that period with the two years following that legislation.

The paper has four principal objectives:

1. The first objective is to describe how much Medicaid program expenditure growth rates were reduced below historical rates and how these reductions were distributed among the states. How many states experienced expenditure reductions and by how much? How many states received incentive rebates by keeping their expenditures below predetermined targets? Did states increase Medicaid spending with the economic recovery in 1983?

2. The second objective is to try to understand how states achieved these cutbacks. Were there proportionate cuts in all services or were some affected more than others? Do the service reductions seem to be related to the OBRA legislation?

3. The third objective is to see if the pattern of cutbacks was evenly distributed across eligibility groups or whether certain groups received a disproportionately greater share of the cuts. Were the differences in

expenditure reductions attributable to the eligibility reductions or to differences in use of specific services by different eligibility groups?

4. The final objective is to disentangle the effects of the OBRA policy changes from the effects of the recession and other factors. Were the expenditure reductions principally due to the effect of the declining economy with the result that there will be little lasting effects? Or did reduced matching rates influence state policy formulation? Or did OBRA mark a major turning point in the evolution of the Medicaid program by permitting more policymaking flexibility?

The data used in this paper comes from three different HCFA expenditure reports. These data provide the only detailed aggregate picture of the entire Medicaid program. A number of adjustments were made to improve the cross-year accuracy of the data series.

The methods used in part of the analysis were straightforward presentation and discussion of cross-tabulations. In the latter part of this paper, we employ multivariate statistical methods to analyze the relationship between Medicaid spending and the recession and OBRA provisions.

There are three kinds of limitations in the analysis. The first is inherent in the quality of the data. Despite our extensive efforts to "clean" the data, undoubtedly some errors remain. Such data measurement errors make it more difficult to obtain statistically significant results. The second is that it is difficult to precisely measure the effect of either the recession or OBRA. In our analysis we employ "proxy" variables. While this is standard practice in statistical analysis, it does limit the strength of conclusions. For example, we use income per taxpayer as a measure of economic conditions. The variable will clearly capture the ability of states to spend on Medicaid services. Unfortunately, however, the variable is also correlated with poverty and need for services. Thus, income per taxpayer captures the net effect of offsetting influences, e.g., the positive effect of income on ability to spend and the negative effect of poverty on the need for services. Similarly, we measure the effects of OBRA directly through the federal matching rate variable and indirectly with a binary variable for the year in which OBRA was implemented. To the extent this binary variables captures other influences, the true effect of OBRA is masked.

The third limitation stems from the cross-sectional nature of the data. Cross-sectional models are typically used to estimate long-term effects. They are weaker in generating short-term impacts. If short term responses are in the same direction as long-term effects then the model provides useful information on the effects of changes in economic conditions and federal matching contributions.

Several important conclusions emerge from the analysis. They will be briefly summarized below.

1. 1982 was a rather dramatic year for state Medicaid programs. Expenditure growth fell by a substantial degree, from annual increases of about 17.3 percent in 1979 through 1981 to 6.4 percent in 1982. The 6.4 percent increase represents a real reduction of 0.4 percent. The reductions in expenditures were widespread across the nation with virtually every state lowering the rate of increase in its spending. Thirty-one states kept their spending growth below their OBRA target, thereby avoiding the three percent reduction in federal matching funds.

2. Economic conditions and federal matching rates seem to have been important factors in explaining state expenditures. However, economic conditions seem to have been more important. As noted above, the model´s results are more appropriate for understanding cross-sectional differences. However, if short-term responses are consistent with the findings from the cross-sectional model, one could estimate that the recession had a greater impact on real spending than did the matching rate reduction.

3. Economic conditions were found to affect both acute care and long term care spending. Likewise, federal matching rates also seem to reduce expenditures on both acute care and long term care.

4. A time variable was used to control for any other influences not captured by another variable in the model. The principal influences it should capture are medical care price increases in excess of general inflation and structural changes to avoid spending increases. The variable was not significant in explaining levels of Medicaid expenditures on acute care. The fact that the time variable was insignificant suggests states made policy changes which offset the influence of medical price inflation which outstripped general price inflation in 1982 by about 5 percent. Whether Medicaid programs would have increased payment rates in line with medical care inflation without OBRA cannot be determined. However, one possibility is that the eligibility reductions and other structural changes resulting from OBRA reduced expenditures by enough to offset some of the large increase in medical care inflation. Acute care spending rose by only 3.7 percent in 1982 in nominal terms and fell by 2.9 percent in real terms. The time variable did not offset the dampening effects of income and matching rates.

5. In contrast, the time variable was significant and positive in explaining long-term care expenditures, indicating continuance of an upward secular trend. States seem to be less willing to constrain expenditures in this area, and may be substituting Medicaid financing for long-term care services otherwise provided by the states. For example, federal matching funds, even at reduced levels, are better than no federal support at all. The positive effect may be especially related to the growth in ICF-MRs and care for the mentally ill. The net result was a real increase in long-term care spending of 2.3 percent, after adjusting for the dampening effect of the recession and matching rate reductions.

6. Medicaid spending began to increase in real terms again in 1983. Expenditures increased nationally by 9.4 percent or by 4.6 percent in real terms. Thirty-seven states had higher rates of increase in 1983 than in the previous year. Thirty-six states had rates of increase in real spending of greater than 4 percent. The growth in spending in 1983 is consistent with our expectations of the effects of an improving economy.

7. The empirical analysis we report was designed to explain why expenditures fell, and not to explain how, i.e., the

policy instruments chosen. Nonetheless, based on our review of state policy changes, two kinds of policy changes seem to have been important in bringing about lower spending rates. One is the reduction in eligibility which was heavily focused on the AFDC working population. The second was the aggressiveness with which states imposed limits on or increased review of utilization for a wide range of services. States applied a wide range of limits on hospital utilization and their control over hospital expenditures was substantially greater than ever before. These limits, controls, review procedures, etc., seem to have been spread across large numbers of other services and to have been quite effective. Optional services, including prescription drugs, dental care and other forms of care appear to have been particularly hard hit.

8. The most important long-term policy change from OBRA will probably prove to be that affecting hospital reimbursement. The effects of other aspects of the new "flexibility" (freedom of choice, home and community-based care, etc.) have been minor; there has been a great deal of activity but, as might be expected, little impact through 1983 on aggregate Medicaid spending. The hospital reimbursement changes permitted states to pay less than what any particular hospital spends and to gain control over the rates of increase in their outlays for hospital care. The adoption of new prospective payment systems occurred throughout 1982 and 1983 and were probably not of great importance in explaining the drop in spending in 1982. This change will grow in importance as an increased number of states adopt new payment policies.

9. Expenditure reductions were most evident for the AFDC population. Expenditures on children fell even in nominal terms. The expenditure decline for AFDC recipients occured both because of the eligibility reductions and because AFDC recipients tend to use services receiving the most severe cutbacks.

10. The results demonstrate the extremely important role of provider availability on program expenditures. Increased supplies of both physicians (and whatever they are a proxy for) and nursing home beds increase access and utilization. Providers undoubtedly also affect program policy formation. The supply of physicians in particular appears to be an extremely important influence on Medicaid spending. This is important in light of projected increases in physician supply.

I. OVERVIEW

The paper is organized as follows. The remainder of this section of the paper provides some discussion of the changes brought about by the 1981 Omnibus Budget Reconciliation Act.[1] We then provide a brief description of the 1981-1982 recession and its impact on different areas of the nation. Finally, historical constraints on Medicaid cost containment are discussed. In the next section we discuss the data used in the paper. We then provide information on the distribution of Medicaid expenditure changes across states, across services, and across eligibility groups. We then develop a model to analyze the determinants of Medicaid expenditures. Regression equations are estimated for total Medicaid expenditures and for acute care and long-term care. In addition, equations were estimated for the aged, blind and disabled, and the AFDC population. The results of the analysis are then described.

II. BACKGROUND

A. The 1981 Omnibus Budget Reconciliation Act

The 1981 Omnibus Budget Reconciliation Act reduced the federal contribution to Medicaid spending while greatly increasing the administrative flexibility of the states. Beginning October 1, 1981, the act maintained the previously used formula for computing federal Medicaid contributions. However, it reduced the federal share by 3 percent in FY 1982, 4 percent in FY 1983 and 4.5 percent in FY 1984. The entitlement nature of the Medicaid

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1. The background discussion of Medicaid policy initiatives relies heavily on Randall R. Bovbjerg and John Holahan, "Medicaid in the Reagan Era: Federal Policy and State Choices," Washington, D.C.: The Urban Institute, 1982.

program was not changed, however, meaning that the federal contribution remained open-ended with the minimum basic matching percentage still equal to 50 percent (roughly 48.5 percent in FY 1982 after the 3 percent cut).

The federal matching reductions mandated by the legislation could have been avoided by the states if they took actions to reduce program expenditures. States were permitted to subtract from the federal reduction the amount by which they hold FY 1982 spending below a target amount set at 109 percent of the previously projected FY 1981 level. The medical care component of the CPI was to be used to adjust future spending targets upward from the 1982 target level. In addition, a 1 percentage point offset to the 3 percent cut is applied to states in each of the following circumstances: (a) states which operated approved hospital rate-setting programs, (b) states which have unemployment over 150 percent of the national average, and (c) states which save more than 1 percent of the federal contribution through fraud and abuse recovery programs. This provision increased slightly the already considerable pressure on states to stem the growth in Medicaid spending. (FY 1982 federal support also changed automatically when new federal share percentages were computed based on the most recent income data for the states. Some percentages increased while others decreased, but in few instances was the difference as large as the 3 percent reduction.)

The 1981 act made a number of changes in eligibility. The most important were these:

1. States were required to limit expenses counted against income in determining eligibility for AFDC grants; this policy reduces the number eligible for AFDC, and thus Medicaid eligibles.
2. Coverage of persons under age twenty-one who do not receive AFDC payments, but who would be eligible for

AFDC if they were in school, became optional rather than mandatory.

3. States were prohibited from making cash-assistance payments to first-time pregnant women until the sixth month of pregnancy; states were given the option of providing AFDC benefits thereafter. (They also retained the option of providing Medicaid benefits from the time pregnancy was medically verified.)

4. Medically needy income and asset levels were permitted to vary between groups (e.g., aged vs. disabled). This change allows states to target additional optional coverage more selectively. States were also allowed to vary the service package among medically needy categories.

5. A provision in the 1980 Omnibus Budget Reconciliation Act that did not go into effect until late FY 1981 allowed states to declare as ineligible those individuals who purposely reduced their assets in order to qualify for medical assistance. In practice, it can be presumed that an applicant transferred assets to an individual in order to establish Medicaid eligibility if the transaction took place during the two-year period prior to the application date and the applicant received less than fair market value in exchange.[2]

In the general area of service coverage and utilization, the 1981 act made a number of notable changes. First, states were permitted to limit services for some but not for all medically needy persons (e.g., to cover dental services for medically needy children, but not for adults).

Second, states were permitted to limit freedom of choice (as previously understood) (a) to enter into competitive-bidding arrangements for buying laboratory services or medical supplies and (b) to "lock in" overutilizing recipients or to "lock out" providers who have been found to give too many services or poor quality care--provided reasonable access to care for beneficiaries is maintained. (Other freedom of choice restrictions on available providers or services are possible by waiver.)

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[2] Subsequent legislation, TEFRA and DEFRA, made changes to eligibility requirements which offset some of the provisions of OBRA. This study addresses only the first year effects of the OBRA changs.

The 1981 act also made it easier to obtain waivers of the "freedom of choice" requirement to implement new medical care delivery systems such as case management or primary care networks. Under these alternative delivery methods, states have the power to limit enrollees' choice of physician. In order to become more attractive to Medicaid eligibles, HMOs and other prepaid delivery systems were allowed to offer additional services. Thus, by encouraging HMO participation in Medicaid, by expanding the array of delivery arrangements that are permissable under the program, and by instituting incentives for recipients to enroll in alternative delivery forms, the new act dealt with several impediments to delivery system reform.

A very important change brought about by the 1981 legislation was the elimination of the federal requirement for reasonable cost reimbursement of hospitals. The reimbursement rates established by the states are now only required to be "reasonable and adequate" in terms of meeting the costs of "efficiently and economically operated facilities" and assuring "reasonable access" to services of "adequate quality." As interpreted by federal administrators, the change in the legislative language allows states to set caps on the following year's payments that are independent of actual hospital spending or increases in the costs of goods and services used by hospitals. Coupled with the legislative changes was an apparent softening of the HCFA approval process which makes it easier for states to implement changes.

A number of provisions in the 1981 act were intended to broaden the states' use of prepayment arrangements. In the past, states attempting to implement nontraditional payment mechanisms or to limit the right of Medicaid patients to choose a provider were first required to obtain a special waiver from HHS. In the case of Health Maintenance Organizations, the new legislation raised the ceiling on public program participation in each HMO from 50 to 75 percent of total enrollment. Moreover, the 75 percent level could be exceeded with a waiver. States were also allowed to guarantee HMOs that all Medicaid enrollees would retain eligibility with federal matching funds for at least six months, even if the enrollees might otherwise have lost eligibility before the end of the period.

Finally, under provisions of the 1981 act, states were allowed to apply for waivers covering home and community-based services for individuals who would otherwise need to be placed in a skilled nursing or intermediate care facility. In order to obtain a waiver, states must assure HHS that individuals will be carefully screened with regard to their need for SNF/ICF care, that patients will be allowed to choose between a nursing home or community care, and that per capita spending under the waiver will not exceed the level of spending that otherwise would have occurred. These waivers permit states to provide case management, homemaker services, home health aid, personal care services, adult day care, respite care, and similar services.

B. **The Impact of the Recession on State Economies**

The most difficult problems facing analysts studying this period is that the nation entered a severe economic recession in 1982 immediately after two earlier years of declining economic activity. States' ability to spend on any public programs were severely constrained at the same time that the OBRA legislation was implemented. Distinguishing between the two sets of influences is a difficult analytic task.

Declines in economic activity can produce both increased demand for services and fewer resources for Medicaid programs. The first effect is that some of those losing employment eventually became eligible for welfare assistance and therefore Medicaid. Others lose insurance and, when faced with high medical bills, became eligible through the Medicaid "spend-down" provisions. On the other side, reductions in per capita incomes affect states' ability to expend resources on Medicaid as well as other public activities. States face a gap between where expenditures would be if they stayed constant in real terms and actual projected tax revenues prior to any tax rate changes. Because of balanced budget requirements faced by states, they must reduce expenditures or increase taxes or both.

The impact of the recession is viewed differently depending on the measure one uses. If the depth of the recession is guaged by unemployment rates, it is clear that state economies were in very bad shape in 1982. As shown in Table 1, unemployment rates rose in every region between 1979 and 1980, with particularly rapid increases in the East North Central and West North Central regions. Unemployment increased slightly in 1981 and then rose dramatically in 1982. The regions with the highest unemployment rates were the East North Central, East South Central and Pacific.

Examination of data on real per capita income by census division in Table 2 provides a somewhat different picture. The decline in real per capita income was greatest between 1979 and 1980. The combination of rising unemployment and high inflation rates caused reductions in real per capita income of 3 percent, and even more in several regions. Real per capita income declined again in 1980 by 1.6 percent. Surprisingly the decline in real per capita income was only 0.9 percent in 1982 despite the sharp rise in

Table 1

Unemployment Rates by Census Division

	1979	1980	1981	1982	1983
New England	5.4	6.3	6.3	7.8	6.8
Mid Atlantic	7.0	7.5	7.8	9.4	9.4
E. North Central	6.0	9.2	9.7	12.5	12.0
W. North Central	3.8	5.3	6.0	7.8	7.9
South Atlantic	6.0	6.9	7.0	8.7	8.5
E. South Central	6.1	7.9	9.2	12.1	12.3
W. South Central	5.1	6.1	5.9	7.5	8.9
Mountain	4.9	6.3	6.3	9.8	8.6
Pacific	7.1	7.5	7.8	10.2	9.9
Total	5.8	7.1	7.6	9.7	9.6

Source: Handbook of Labor Statistics, Selected Issues

Table 2

Real Per Capita Income by Region

	1979	1980	% Change 1979-80	1981	% Change 1980-81	1982	% Change 1981-82	1983	% Change 1982-1983
New England	$5063	$5025	-0.76	$4961	-1.27	$5006	0.92	$5156	2.93
Mid Atlantic	5360	5379	0.35	5301	-1.44	5420	2.24	5484	1.17
E. North Central	5387	5108	-5.17	4958	-2.95	4802	-3.14	4795	0.14
W. North Central	4869	4728	-2.90	4613	-2.43	4429	-3.99	4360	1.56
South Atlantic	5070	4911	-3.14	4841	-1.42	4865	0.50	4921	1.15
E. South Central	4088	3893	-4.78	3804	-2.29	3747	-1.49	3722	-0.65
W. South Central	4586	4457	-2.80	4518	1.36	4472	-1.02	4240	-5.20
Mountain	5199	5010	-3.64	4898	-2.24	4675	-4.54	4550	-2.68
Pacific	5991	5776	-3.59	5706	-1.21	5615	-1.60	5545	-1.24
U.S. Total	5210	5054	-2.99	4974	-1.59	4931	-0.85	4930	-0.03

Sources: Price Deflators--Survey of Current Business (selected issues);
Adjusted Gross Income--Statustics of Income Bulletin (selected issues);
State Population--Current Population Reports (selected issues).

unemployment. While real per capita income was lower in 1982 than in the previous years, the rate of decline had fallen. The reduced rates of inflation by 1982 offset rising unemployment. Because of low unemployment rates, three regions--New England, Middle Atlantic, and South Atlantic--actually had increases in real per capita income.

C. Why States Resist Medicaid Program Contraction

While both the OBRA legislation and low levels of economic activity make expenditure cuts highly predictable, there are at least five reasons why Medicaid cutbacks have historically been resisted by states. They help explain why Medicaid budgets have risen continuously throughout the history of the program (prior to 1982).

First, cutting eligibility may reduce Medicaid but not costs to the state and its taxpayers. Broad Medicaid eligibility standards (and higher federal assistance) may reduce overall medical spending by states (and its counties and cities) rather than increase it. States, counties, and cities have always borne a large share of the responsibility for providing care to indigent populations. The need for some level of government to serve as provider or payer of last resort will not disappear if Medicaid eligibility is constrained. A more likely outcome would be a shift of some of the financial burden to cities and counties, or perhaps to the state itself, with no accompanying federal matching payments.

Second, Medicaid programs purchase services for beneficiaries from private providers--physicians, hospitals, nursing homes, pharmacies, etc. Until OBRA, Medicaid programs were basically required to pay hospital costs (or design an alternative arrangement meeting other federal requirements). For other services rates of payment had to be sufficient to maintain patient access. While "maintaining access" is difficult to measure, the requirement imposes a practical though vague limit on how low Medicaid rates of payment could be. While states have paid below market levels for many services, they are also affected by the underlying rate of inflation. Thus a major cause of Medicaid cost growth has been, and will continue to be, the inflation in costs of Medicaid services.

Third, the open-ended nature of the federal match, whatever the percentage level for a given state, often makes it attractive to substitute Medicaid spending for other state (or local) spending for which the federal match, if any, is less than Medicaid's. This substitution incentive is, of course, strongest in states that have undertaken significant non-Medicaid responsibilities. Perhaps the best example of such substitutions is the optional ICF/MR coverage, of which forty-seven states have taken advantage to help pay for state institutional care for the mentally retarded. Social services (Title XX assistance) and maternal and child health (Title V) are two other areas in which federal dollars are limited, so that marginal spending must be funded entirely with state dollars. It is therefore attractive to switch funding of such services to Medicaid whenever possible. It is also for the same reason unattractive to eliminate coverage for these services.

Fourth, a large number of federal regulations shape the structure of Medicaid programs. Federal law dictates the basic design of the program--eligibility through entitlement, certain mandatory benefits, free choice of provider, cost-based reimbursement, etc. While the 1981 legislation increased state flexibility in these areas, these factors continue to make Medicaid spending hard to both predict and control.

Fifth, the political influence of beneficiary and provider interest groups is often substantial. Moreover, their interests are often aligned--against cutbacks. Not all beneficiary or provider groups are equally potent. The aged seem more influential than other groups and nursing homes stronger than physicians or pharmacists. Differences in relative strength varies among states. Whatever the various roles, they affect the range of feasible state choices.

III. DATA

Most of the data used in this paper come from two sources. The first is the HCFA-2082, which contains data reported by all 50 states for expenditures and recipients, broken down by service and by eligibility category. The years employed in this analysis were 1979 through 1982. Throughout the history of this data series, some states have reported with greater degrees of accuracy than others. A number of cross year edit checks were performed to identify states with extreme year-to-year fluctuations or missing data.

The second source of data is the HCFA-64. This report is provided quarterly by the states and is used to compute federal matching grants. This data does not contain the same eligibility and service group detail as the 2082. The data, however, do reflect actual state payments for Medicaid services and are subject to federal audit. For this reason, we believe the HCFA-64 to be more reliable for inter-year comparisons. However, this data source do not contain information by service and by eligibility category. We therefore computed the ratio of state expenditures from the HCFA-64 to state expenditures from the HCFA-2082. We then adjusted each expenditure number on the HCFA-2082 file by the same ratio; for example, if expenditures in a given state are 3 percent higher in the HCFA-64 than in the HCFA-2082 reports, we increased expenditures on all services for all eligibility groups by 1.03. The implicit assumption is that errors in this HCFA-2082 are spread evenly across all services and eligibility groups. A number of adjustments were also made to the recipient data from the HCFA-2082. The adjustments are described in Appendix A.

All the data provided in Section IV, except for tables 4 and 5, were derived from our combined 2082/64 data set. Similarly, the regression analyses in section V employs the same data set for Medicaid expenditures.

IV. DISTRIBUTIONAL IMPACTS OF MEDICAID EXPENDITURE CHANGES, 1979-1983

This section describes changes in Medicaid spending between 1979 and 1983. In the first section, differences among states in rates of increase in the two years following OBRA are discussed. Comparisons are made with the OBRA targets established to determine eligibility for rebates. The discussion illustrates that cutbacks were fairly widespread among states. The analysis also reveals that states generally had higher nominal rates of increase in Medicaid expenditures between 1982 and 1983, despite lower levels of inflation.

The second section describes the pattern of cutbacks across services. The kinds of policies states can employ to control expenditures for different services are discussed as well. The discussion demonstrates the importance of the OBRA legislation in permitting states to control expenditures for hospital services.

The third section describes the distribution of expenditure reductions across aid groups. Medicaid can be thought of as three different programs:

one serving the elderly, a second serving the blind and disabled, and a third serving the AFDC population. Both eligibility criteria and the services used by these groups vary substantially.

A. Distribution of Expenditure Changes Across States

1. Increases in Reported Spending

In this section, changes in aggregate Medicaid expenditures across states are examined in both nominal and real terms. Data by state on changes in expenditures for 1981-1982 are presented and contrasted with average annual changes in the two previous years and in the following year. The data indicate how states responded in 1982 to the variety of forces affecting spending and in 1983 to the economic recovery.

Table 3 shows that Medicaid expenditures increased by 6.4 percent in nominal terms from 1981 to 1982, after having increased at annual rates of 17.3 percent from 1979 to 1981. There was a wide range in terms of percentage increases in expenditures between 1981 and 1982. Ten states had actual reductions in nominal outlays. All but four states had lower growth rates than in the previous two years. Thirty-three (33) states had expenditure growth below 9 percent, the target for avoidance of the federal matching rate penalty.[3] Of the remaining states, only nine had real rates of increase in excess of 5 percent. In contrast, 35 states had average annual real increases in excess of 5 percent between 1979 and 1981.

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[3] Official determination of whether states stayed within the 9 percent target is based on a comparison of actual 1982 spending with an estimate of 1981 expenditures made in April of 1981. The data reported here reflects a comparison of actual 1982 spending with actual 1981 spending.

Table 3

Percentage Changes in State Medicaid Expenditures, by State

		1979 Expenditures (in millions)	Annual % Change 1979-1981		% Change 1981-1982		% Change 1982-1983	
	State	(1)	Nominal (2)	Real (3)	Nominal (4)	Real (5)	Nominal (6)	Real (7)
1	United States	$20,209.4	17.30	7.42	6.37	-0.40	9.42	4.91
2	Alabama	224.1	12.82	3.32	7.42	0.58	10.75	6.18
3	Alaska	28.5	24.68	14.18	-1.13	-7.43	19.18	14.27
4	Arkansas	200.5	17.67	7.76	-2.52	-8.73	17.62	12.77
5	California	2,478.0	19.66	9.58	1.64	-4.83	-0.86	-4.95
6	Colorado	159.9	15.39	5.67	10.19	3.17	11.45	6.86
7	Connecticut	295.4	13.14	3.61	16.40	8.99	11.83	7.22
8	Delaware	38.7	19.07	0.04	4.89	-1.79	6.82	2.42
9	District of Col.	140.8	6.29	-2.66	16.12	8.73	31.48	26.06
10	Florida	348.8	19.30	9.25	13.85	6.60	23.31	18.23
11	Georgia	389.3	17.97	8.03	6.37	-0.40	6.40	2.01
12	Hawaii	82.5	15.12	5.42	11.88	4.76	14.89	10.15
13	Idaho	46.0	13.99	4.39	-1.00	-7.30	12.41	7.78
14	Illinois	935.4	24.48	13.99	-2.25	-8.47	1.12	-3.05
15	Indiana	316.8	18.83	8.82	14.86	7.55	16.32	11.52
16	Iowa	199.4	16.35	6.55	5.61	-1.11	8.95	4.46
17	Kansas	165.5	14.27	4.64	5.79	-0.95	9.28	4.77
18	Kentucky	252.9	19.96	9.85	2.64	-3.90	17.52	12.67
19	Louisiana	344.6	12.20	2.75	23.88	15.99	15.11	10.36
20	Maine	122.8	12.56	3.08	11.03	3.96	13.36	8.69
21	Maryland	324.9	19.74	9.65	2.29	-4.22	15.30	10.56
22	Massachusetts	942.3	9.46	0.24	6.63	-0.16	11.13	6.55
23	Michigan	1,026.1	13.62	4.05	4.33	-2.31	2.93	-1.31
24	Minnesota	486.9	17.95	8.01	17.83	10.33	9.51	5.00
25	Mississippi	196.5	11.54	2.14	8.56	1.65	14.21	9.50
26	Missouri	214.4	28.01	17.23	8.83	1.90	19.97	15.02
27	Montana	54.0	27.11	16.40	1.03	-5.40	27.46	22.21
28	Nebraska	91.7	15.35	5.63	7.35	0.51	14.35	9.64
29	Nevada	32.4	37.95	26.33	5.95	-0.80	12.93	8.27
30	New Hampshire	61.2	17.25	7.37	3.91	-2.71	10.22	5.68
31	New Jersey	677.5	11.43	2.04	4.75	-1.92	12.88	8.23
32	New Mexico	59.2	23.20	12.82	9.34	2.38	3.55	-0.72
33	New York	3,606.8	18.61	8.62	10.00	3.00	9.42	4.91
34	North Carolina	342.3	18.37	8.40	1.58	-4.89	16.91	12.09
35	North Dakota	42.3	19.19	9.15	10.40	3.37	26.45	21.24
36	Ohio	676.0	24.34	13.86	19.82	12.19	16.49	11.69
37	Oklahoma	257.5	17.69	7.77	2.57	-3.96	4.97	0.64
38	Oregon	164.1	9.40	0.18	1.01	-5.42	11.75	7.14
39	Pennsylvania	1,132.3	14.34	4.71	10.96	3.90	6.87	2.46
40	Rhode Island	133.8	16.76	6.92	7.47	0.63	11.30	6.71
41	South Carolina	189.6	24.40	13.92	-3.39	-9.54	0.30	-3.84
42	South Dakota	49.4	20.29	10.12	8.03	1.15	0.97	-3.19
43	Tennessee	314.4	16.18	6.39	-6.07	-17.65	19.04	14.13
44	Texas	918.5	13.18	3.64	-1.58	-7.85	19.61	14.68
45	Utah	72.3	11.24	1.87	16.52	9.10	15.92	11.14
46	Vermont	53.0	15.68	5.93	9.22	2.27	4.74	0.42
47	Virginia	299.2	20.73	10.56	8.41	1.51	2.78	-1.46
48	Washington	300.4	18.03	8.09	-4.85	-10.91	5.92	1.55
49	West Virginia	91.9	17.25	7.37	-4.88	-10.94	19.77	14.83
50	Wisconsin	618.2	15.61	5.87	-0.27	-6.62	7.70	3.26
51	Wyoming	11.3	22.08	11.79	20.71	13.02	19.06	14.15

Source: HCFA-64 Expenditure Report

We disaggregated to examine the two components of total expenditures, recipients and expenditures per recipient. In general, while the number of recipients declined, reductions in the rate of increase in expenditures per recipient were principally responsible for the general restraint on expenditure growth. Recipients fell by about 2 percent in 1982 after having risen by over 2.4 percent per year from 1979 to 1981. Forty of the 50 states had a lower growth rate of recipients. Thirty-five of the 50 states had fewer recipients in 1982 than in 1981.

The growth in average expenditures per recipient fell by more. Nominal expenditures per recipient grew by 8.6 percent after having risen by 14.5 percent in each of the previous two years. Thirty-five of the 50 states had a lower growth rate in expenditures per recipient than they had in the previous two years. This occurred despite a slight increase in the medical care component of the CPI (10.4% to 12.1%). The reduction did follow the reduction in general price inflation from 9.2 percent to 6.8 percent.

Data presented in column (3) of Table 3 indicate that state Medicaid spending began to increase again in real terms in 1983. The underlying rate of inflation, as measured by the implicit price deflator, declined from 6.8 percent to 4.6 percent between 1981-1982 and 1982-1983.[4] Thus, the nominal increase for the U.S. of 9.4 percent in 1982-1983 versus 6.4 percent in 1981-1982 reflected a real increase of about 4.9 percent following a real decrease of 0.4 percent in the previous year. This suggests that Medicaid spending responded positively to the economic recovery.

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[4] Throughout this report we use the implicit GNP price deflator to measure general price inflation in the U.S. economy. This measure of inflation is used rather than medical care inflation because the intent is to measure the contribution by society to Medicaid—thus requiring a measure of constant dollar outlays.

Thirty-seven of 50 states or jurisdictions had nominal higher rates of increase in 1983 than in the previous year, despite a lower rate of general inflation. The rate of increase in spending nationally appears to have remained low only because of continued low growth rates in such large states as California (-0.9%), Illinois (1.1%), Michigan (2.9%), Pennsylvania (6.9%), and New York (9.4%). On the other side, 32 states had rates of growth in excess of 10 percent and 18 in excess of 15 percent, indicating perhaps a return to historical patterns of spending growth.

2. Increases in Medicaid Spending Compared with OBRA Targets

The 1981 OBRA legislation reduced federal Medicaid contributions by 3 percent in FY 1982, 4 percent in FY 1983, and 4.5 percent in FY 1984. States could avoid these reductions by keeping their spending growth between 1981 and 1982 below 109 percent of an estimate of 1982 spending made in April of 1981. The target was based on an estimate to avoid "gaming" of the system; e.g., if the target was based on actual spending, states could increase the rate at which bills were paid, thereby increasing the 1982 base and easing the task of living within the target. The target for 1983 was based on the increase in the medical care component of the CPI and consequently permitted states an increase of 7.5 percent above their 1982 targets.

The effect of the calculation procedure is that a state could receive a rebate even if its actual expenditures increased at a rate in excess of the 9 percent rate permitted by the legislation. This will occur if the state's actual 1982 expenditures were less than the April estimate for 1982. In addition, some states could have had actual expenditure growth below 9 percent and not receive a rebate. This could occur if actual 1982 expenditures exceeded the estimated expenditures.

Tables 4 and 5 show the 1982 and 1983 target expenditures by state, respectively, as well as actual expenditures, various offsets, incentive rebates, and federal savings for both years. Incentive rebates refer to the recoupment by states of lost "matching funds" by keeping expenditures below the target, while federal savings refers to net federal matching contributions. Table 4 shows that 31 states received incentive rebates, while Table 3 indicated 33 states had actual rates of increase in spending below 9 percent. Four states (District of Columbia, South Carolina, Utah, and Vermont) had actual expenditure increases greater than 9 percent and received rebates. On the other side, five other states (Iowa, Massachusetts, Rhode Island, South Dakota, and Virginia) had actual expenditure growth below 9 percent and did not receive rebates.

In 1983, the target growth rate was 7.5 percent above the 1982 target. A state which kept its 1982 expenditures below the 1982 target could have 1983 expenditure growth above 7.5 percent and still stay below the 1983 target. In other words, success in expenditure control in 1982 made it easier to earn rebates in 1983. The result was that only 13 states had expenditure growth between 1982 and 1983 below 7.5 percent, but 26 states received incentive rebates.

In Tables 4 and 5, the column labeled Gross Reduction reflects the 3 percent and 4 percent matching contribution reductions in 1982 and 1983, respectively. The next three columns provide data on fraud and abuse, hospital rate setting, and unemployment offsets. States meeting the criteria for any of these offsets had the matching contribution reductions "offset" by 1 percent. In 1982, the federal government permitted states to count third-

Table 4

Impact of Federal Matching Contribution Reductions, by State, 1982

	Actual 1982 Medicaid State Expenditures (000)	1982 Target: 109% of Projected 1981 Expenditures	Gross Reduction: 3% of Federal Share	One Percent Offsets			FY 1982 Incentive Rebate	Federal Net Savings
				TPL/F&A	Hosp.	Unemp.		
Alabama	$ 241,017	$ 245,200	$ 7,027	$ 2,342	$ 0	$ 623	$ 4,062	$ 0
Alaska	20,294	24,138	653	0	0	0	653	0
Arkansas	212,115	244,044	6,322	0	0	0	6,322	0
California	2,150,066	2,218,030	63,291	21,097	0	0	42,194	0
Colorado	136,604	131,881	4,208	1,403	0	0	0	2,805
Connecticut	229,670	212,247	6,896	2,299	2,299	0	0	2,298
Delaware	30,121	32,728	904	0	0	0	904	0
Dist. of Col.	91,834	103,537	2,877	0	0	0	2,877	0
Florida	355,319	350,649	10,667	3,556	0	0	0	7,111
Georgia	402,447	413,496	12,026	4,009	0	0	8,017	0
Hawaii	66,585	63,016	1,963	654	0	0	0	1,309
Idaho	41,878	45,927	1,254	418	0	0	836	0
Illinois	763,107	824,917	22,862	2,030	0	0	20,832	0
Indiana	298,431	282,850	8,942	0	0	0	0	8,942
Iowa	169,492	165,685	5,023	1,674	0	0	0	3,349
Kansas	128,988	133,719	3,858	1,286	0	0	2,572	0
Kentucky	276,141	285,375	8,267	0	0	0	8,267	0
Louisiana	395,700	365,818	11,948	0	0	0	0	11,948
Maine	137,300	123,536	4,054	1,351	0	0	0	2,703
Maryland	250,885	267,693	7,599	2,533	2,533	0	2,533	0
Massachusetts	690,563	685,728	21,287	0	7,095	0	0	14,192
Michigan	760,489	772,409	22,612	7,537	0	7,537	7,538	0
Minnesota	446,720	427,024	13,401	4,467	0	0	0	8,934
Mississippi	218,295	221,066	6,460	2,153	0	0	2,771	1,536
Missouri	257,138	287,355	7,596	0	0	0	7,596	0
Montana	46,458	49,170	1,602	534	0	0	1,068	0
Nebraska	88,774	89,548	2,659	886	0	0	774	999

Table 4 (continued)

	Actual 1982 Medicaid State Expenditures (000)	1982 Target: 109% of Projected 1981 Expenditures	Gross Reduction: 3% of Federal Share	One Percent Offsets			FY 1982 Incentive Rebate	Federal Net Savings
				TPL/F&A	Hosp.	Unemp.		
Nevada	37,093	32,689	1,103	368	0	0	0	735
New Hampshire	55,664	61,358	1,670	273	0	0	1,397	0
New Jersey	478,467	507,408	14,231	3,826	4,744	0	5,661	0
New Mexico	71,422	72,089	2,125	708	0	0	667	750
New York	3,110,469	2,862,705	91,809	30,603	30,603	0	0	30,603
North Carolina	343,296	376,249	10,358	3,453	0	0	6,095	0
North Dakota	44,100	42,763	1,337	446	0	0	0	891
Ohio	728,603	688,492	21,830	0	0	0	0	21,830
Oklahoma	240,309	248,244	7,195	721	0	0	6,474	0
Oregon	124,697	134,552	3,734	1,245	0	0	2,489	0
Pennsylvania	960,839	925,165	29,502	2,491	0	0	0	27,011
Rhode Island	119,815	114,186	3,570	0	1,190	0	0	2,380
South Carolina	208,809	224,578	6,301	0	0	0	6,301	0
South Dakota	53,361	47,453	1,609	536	0	0	0	1,073
Tennessee	290,513	353,634	8,648	0	0	0	8,648	0
Texas	679,010	819,841	20,379	0	0	0	20,379	0
Utah	77,768	79,960	2,358	786	0	0	1,572	0
Vermont	56,977	59,012	1,711	0	0	0	1,711	0
Virginia	301,821	286,188	8,995	0	0	0	0	8,995
Washington	225,805	239,271	6,704	2,235	2,235	0	2,234	0
West Virginia	91,096	97,871	2,723	0	0	0	2,723	0
Wisconsin	501,705	582,278	15,200	1,259	0	0	13,941	9
Wyoming	10,754	10,067	323	108	0	0	0	215
Total	$17,718,824	$17,931,939	$529,673	$109,287	$50,699	$ 8,160	$200,918	$160,609

Source: Medicaid Financial Highlights Department of Health and Human Services, Health Care Financing Administrator, Bureau of Program Operations, Vol. 1, No. 4, March 1984

Table 5

Impact of Federal Matching Contribution Reductions, by State, 1983

	Actual 1983 Medicaid State Expenditures (000)	1983 Target: 17.2% of Projected 1981 Expenditures	Gross Reduction: 4% of Federal Share	One Percent Offsets			FY 1983 Incentive Rebate	Federal Net Savings
				TPL/F&A	Hosp.	Unemp.		
Alabama	$ 253,067	$ 263,590	$ 10,132	$ 0	$ 0	$ 805	$ 9,327	$ 0
Alaska	24,691	25,948	1,020	0	0	0	1,020	0
Arkansas	240,631	262,347	9,665	0	0	0	9,665	0
California	2,132,288	2,384,382	84,843	21,211	0	0	63,632	0
Colorado	145,768	141,772	5,863	0	0	0	0	5,863
Connecticut	259,397	228,166	10,381	0	2,595	0	0	7,786
Delaware	32,279	35,183	1,292	0	0	0	1,292	0
Dist. of Col.	127,343	111,302	5,118	0	0	0	0	5,118
Florida	435,869	376,948	17,433	4,358	0	0	0	13,075
Georgia	426,332	444,508	17,074	0	0	0	17,074	0
Hawaii	74,256	67,742	2,995	749	0	0	0	2,246
Idaho	46,358	48,404	1,874	0	0	0	1,874	0
Illinois	762,299	886,786	30,517	0	0	0	30,517	0
Indiana	344,539	304,064	13,769	0	0	0	0	13,769
Iowa	178,795	178,111	7,161	0	0	0	0	7,161
Kansas	138,137	143,748	5,602	0	0	0	5,602	0
Kentucky	305,123	306,778	12,227	0	0	0	1,655	10,572
Louisiana	428,430	393,254	17,245	0	0	0	0	17,245
Maine	148,875	132,801	6,030	0	0	0	0	6,030
Maryland	294,032	287,770	11,808	0	2,952	0	0	8,856
Massachusetts	720,682	737,158	30,296	0	7,574	0	16,476	6,246
Michigan	784,740	830,340	31,322	0	0	5,941	25,381	0
Minnesota	488,760	459,051	19,549	0	0	0	0	19,549
Mississippi	247,453	237,646	9,917	0	0	0	0	9,917
Missouri	302,413	308,097	12,193	0	0	0	6,494	5,699
Montana	66,043	52,858	2,657	139	0	0	0	2,518
Nebraska	98,132	96,264	3,932	742	0	0	0	3,190

Table 5 (continued)

	Actual 1983 Medicaid State Expenditures (000)	1983 Target: 17.2% of Projected 1981 Expenditures	Gross Reduction: 4% of Federal Share	One Percent Offsets			FY 1983 Incentive Rebate	Federal Net Savings
				TPL/F&A	Hosp.	Unemp.		
Nevada	40,292	35,141	1,611	0	0	0	0	1,611
New Hampshire	58,901	65,960	2,395	0	0	0	2,395	0
New Jersey	526,027	545,464	21,437	0	5,359	0	16,078	0
New Mexico	75,347	77,496	3,011	753	0	0	2,149	109
New York	3,260,310	3,077,408	133,879	33,470	33,470	0	0	66,939
North Carolina	394,181	404,468	15,691	0	0	0	10,287	5,404
North Dakota	54,009	45,970	2,187	0	0	0	0	2,187
Ohio	850,302	740,129	34,164	0	0	0	0	34,164
Oklahoma	256,415	266,862	10,280	0	0	0	10,280	0
Oregon	139,281	144,643	5,580	0	0	0	5,362	218
Pennsylvania	1,021,186	994,552	42,211	0	0	0	0	42,211
Rhode Island	132,730	122,750	5,300	0	1,325	0	0	3,975
South Carolina	210,996	241,421	8,463	0	0	0	8,463	0
South Dakota	54,322	51,012	2,266	0	0	0	0	2,266
Tennessee	348,919	380,157	13,044	0	0	0	13,944	0
Texas	826,376	881,329	33,193	0	0	0	33,193	0
Utah	91,981	85,057	3,706	926	0	0	0	2,780
Vermont	60,233	63,438	2,451	0	0	0	2,451	0
Virginia	297,562	307,652	11,921	0	0	0	10,090	1,831
Washington	223,927	257,216	8,997	0	0	0	8,997	0
West Virginia	105,218	105,211	4,244	0	0	801	0	3,443
Wisconsin	546,873	625,949	21,935	0	0	0	21,935	0
Wyoming	12,717	10,822	509	0	0	0	0	509
Total	$19,094,836	$19,276,835	$771,290	$ 62,348	$53,275	$ 7,547	$335,633	$312,487

Source: Medicaid Financial Highlights Department of Health and Human Services, Health Care Financing Administrator, Bureau of Program Operations, Vol. 1, No. 4, March 1984 party liability recoveries as fraud and abuse savings. The result was that 33 states received the 1 percent fraud and abuse offset. Twenty of these states would have been eligible for the incentive rebates, however, because expenditures increased by less than their targets. In 1983, third-party recoveries were not included and only eight states received the 1 percent fraud and abuse offset.

In 1982, seven states received the hospital cost-containment offset; in 1983, only six states were eligible. In 1982, Michigan and Alabama (one quarter) received the unemployment rate offset; in 1983, Michigan, Alabama, and West Virginia received full or partial offsets.

The U.S. totals for gross reductions increased from $530 million in 1982 to $771 million in 1983 because of increases in state expenditures and because of the increase in the reduction rate. The fraud and abuse offset fell by $47 million while the hospital cost-containment and unemployment offsets increased slightly. The incentive rebates increased from $201 million in 1982 to $336 million in 1983 because of the higher gross reductions, the reduced fraud and abuse offsets, and the relatively large number of states (26) eligible for them. While seven fewer states received rebates, the increased expenditure levels involved resulted in increased aggregate rebates.

The final column of Tables 4 and 5 shows net federal savings. These amounted to $161 million in 1982 and $312 million in 1983. It should be noted that thse are direct savings; that is, they are reductions in federal matching contributions to states which did not reduce their spending growth rates to less than the 9 percent or 7.5 percent targets. The other effect comes from the impact of the threatened matching rate reductions on state spending. Our estimates of the impact of this effect are discussed below. States that reduced spending rates to less than the targets did not suffer a reduction in federal matching rates, but nonetheless had lower federal matching contributions. Thus the federal government benefited in two ways from the OBRA matching rate provisions.

B. Distribution of Expenditure Changes Across Services

Disaggregating the data by type of service reveals that the growth in expenditures fell for every service between 1981 and 1982. Table 6 illustrates that program cutbacks were quite widespread. In this section we describe changes in specific policies that occurred in 1982 and the effects on expenditures for individual services.[5]

1. Hospital Inpatient Care

Hospital inpatient care is the most important single service covered by the Medicaid program, accounting for over 26 percent of all Medicaid expenditures in 1982.[6] Outlays for hospital inpatient care had risen at annual rates of 15.2 percent for the two years prior to OBRA. In 1982, those expenditures rose by only 5.2 percent. The number of recipients of inpatient care fell by 3.1 percent following a modest decline in the previous two years. Expenditures per recipient grew by approximately 8.5 percent after yearly increases of 16 percent. By way of comparison, the hospital component of the CPI grew

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[5] Information on policy changes in state programs discussed in this section was taken from Lawrence Bartlett and Claudia Hansen, eds., Program Information Center, National Governors' Association, March 1982 and from personal communications with state Medicaid administrators.

[6] Skilled Nursing and Intermediate Care Facilities accounted for 31.4 percent if combined.

Table 6

Average Annual Increases
Medicaid Recipients and Expenditures, By Service
United States 1979 - 1982

	Recipients 1979 (in millions)	Expenditures 1979 (in millions)	% Change Recipients		% Change Expenditures Per Recipient		% Change Expenditures	
			1979-81	1981-82	1979-81	1981-82	1979-81	1981-82
Hospital Inpatient Care	3.5	5558.9	-0.70	-3.08	16.03	8.51	15.22	5.17
Physician Services	13.8	1785.3	2.98	-2.83	12.60	.71	15.96	-2.14
Clinic and OHS	9.2	1106.9	6.78	-0.68	18.31	9.32	26.33	8.57
Drugs	13.4	1171.0	3.55	-4.04	11.82	5.54	15.78	1.27
Dental Care	4.3	426.0	9.55	-5.00	4.59	-5.31	14.58	-10.04
SNF	0.6	3335.4	-0.10	-6.49	10.52	14.16	10.41	6.75
ICF	0.8	3789.5	0.62	-0.61	10.14	7.68	10.82	7.02
ICF-MR	0.1	1479.5	22.79	3.80	16.08	13.30	42.53	17.60
All Other	6.8	807.9	18.48	-2.03	4.15	9.47	23.40	7.25
TOTAL	20.1	20,209.4	2.44	-2.06	14.50	8.60	17.30	6.37

Source: HCFA-64 and HCFA-2082 Expenditure Reports by 13.7 percent annually between 1979 and 1981 and by 14.7 percent between 1981 and 1982.

States can control hospital expenditures by placing direct limits on services covered, imposing or increasing the stringency of controls on hospital use or by controlling hospital reimbursement rates.

Limitations placed upon length of stay in general hospitals are probably the most common or typical control imposed by the states. Approximately half have now adopted such limits, either per admission or per year. Moreover, a number of states have imposed more specialized limits, such as bans on nonemergency weekend hospital admissions, limitations on preoperative hospital stays, and exclusion of inpatient surgical procedures that can be performed on an outpatient basis. In contrast to fixed limits, other states employ a number of review mechanisms to limit coverage of "unnecessary" services.

The 1981 OBRA did not make any major changes in the authority of the states to limit service coverage. Nonetheless, a fair number of states, presumably reacting to fiscal and political pressures, instituted reductions in service coverage following enactment of the legislation. Some states began imposing new limits on hospital days while others merely increased existing limits. Georgia, for example, limited hospital coverage to twenty inpatient days per recipient per year, reduced the number of preoperative days prior to elective surgery to one, and eliminated coverage of nonemergency weekend admissions. Iowa limited payments for inpatient hospital care to the 50th percentile for the recipient's diagnosis. The state also eliminated coverage of inpatient care for surgical procedures that could be performed on an outpatient basis. Illinois, Massachusetts, Michigan, Missouri, Rhode Island, South Carolina, and Virginia imposed similar limits that would likewise reduce the number of covered days, eliminate payment for weekend admissions, reduce the allowable number of preoperative days, and end reimbursement for inpatient surgery that could be provided on an outpatient basis.

As noted earlier, in addition to eliminating the federal requirement for reasonable cost reimbursement, the 1981 legislation permitted payment for only the reasonable and adequate costs of hospitals deemed to be efficiently and economically operated. As a consequence of this change and a general increase in fiscal pressures, many states implemented new arrangements or tightened existing systems. Completely new alternative systems were established in Georgia, Illinois, Iowa, Kentucky, Louisiana, Missouri, and North Carolina since enactment of the legislation. Fourteen states had prospective payment systems by April 1982 and six more by June 1983. Other states limited rates of increase in rates within retrospective systems.[7] California introduced a major new approach--a system of negotiating with individual hospitals. Other states are seriously reviewing alternative systems, while still others are making smaller adjustments to change payment levels.

Whether more intensive controls on utilization or new payment arrangements are responsible for the drastically reduced rate of growth is not clear. It is clear, however, that states were successful at reducing the rate of growth in expenditures. The number of recipients fell and the growth in expenditures per recipient was dramatically reduced. The reduction in recipients may be due to the reduction in eligibles, in, say, the medically needy aged or blind/disabled categories, or to controls specific to hospitals which reduced admissions of Medicaid eligibles. If the reduction in recipients reflects the decline in the number of eligibles in high utilization groups, then expenditures per recipient may reflect the difference in the composition of eligibles as well as policy changes. The growth of 8.51 percent reflects a real decline of over 5 percent. If not due to a changing composition of eligibles, this decline could have resulted from both utilization controls and rate-setting. Given the timing of the introduction of new prospective systems, utilization controls were probably more of a factor than rate setting. The decline in real terms, however, is much greater than any ever achieved by a third party payer and will be difficult to sustain.

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[7] Holly Korda and Michael Koetting, "State Medicaid Inpatient Hospital Reimbursement: Summary of State Programs," Abt Associates, December 1984; and James Bell, et al., "Status of Prospective Payment Systems in State Medicaid Programs," November 1984.

2. Physician Services and Hospital Outpatient Care

Physician services accounted for 7.6 percent of Medicaid spending in 1982; hospital outpatient and clinic services accounted for another 6.5 percent. States have always had considerably more discretion over Medicaid payment to physicians than to virtually any other major service. Over time, many states have regularly increased fees while many others, particularly large states, have restricted physician payments. A 1980 survey of states showed that most large states paid physicians considerably less than did Medicare.[8] There is some debate over whether low fees result in lower Medicaid costs. There is a strong likelihood that low fees lead to low physician participation and that this in turn leads to reliance by the poor on hospital outpatient departments and emergency rooms. National Medicaid data has shown that while physician payments grew little, if at all, in real terms in the late 1970s, expenditures for hospital outpatient care grew at about 22 percent per year. Table 6 shows that recipients of and expenditures for outpatient services grew considerably more rapidly than they did for physician services between 1979 and 1981.

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[8] John Holahan, "A Comparison of Medicaid and Medicare Physician Reimbursement Rates," Urban Institute Working Paper 1306-02-04, March 1982.

In 1982 states again found physicians an easy target and fees were frozen in many states. Some reduced their fees. In addition, some states imposed direct limits on the number of visits they would reimburse. Several states started or expanded programs for "locking in" patients who are regarded as "over utilizers." Others introduced second opinion programs for surgery. Some states began developing case-management or primary care network arrangements under the new freedom of choice waiver authority. These arrangements, however, were introduced late in 1982 or in 1983 and had little or no effect on expenditures in 1982. Finally many states moved away from cost-reimbursement for hospital outpatient services.

The net result is that the growth in expenditures for both physician and outpatient services fell dramatically. Expenditures for physician services actually declined in real terms. The growth rate for outpatient service expenditures fell from 26.3 percent to 8.6 percent per year. Nonetheless, outpatient services are still growing and Medicaid recipients continue to receive an increasing share of their care in outpatient settings.

3. Skilled Nursing and Intermediate Care Facilities

Skilled nursing homes accounted for 14.7 percent of Medicaid spending in 1982 while intermediate care facilities accounted for another 16.7 percent in 1982. Expenditures for nursing home care grew by a slightly slower rate in

1982 than in the previous two years. The decline in the rate of growth was small in comparison with other services.

Medicaid provisions have long given states more flexibility in establishing reimbursement rates for nursing homes than for hospitals. Beginning in 1976, states were required to reimburse nursing homes on a "reasonably cost-related basis." Although this requirement tied payment rates to costs, states were granted considerable discretion in establishing rates. Many used their discretion to control rates of increase in these rates.

The 1980 OBRA altered "reasonable cost-related" reimbursement requirements for nursing home payment by only requiring states to establish rates that are "reasonable and adequate" to meet the necessary costs of "efficiently and economically operated facilities." States are thus allowed greater control over rate setting and, presumably, over program expenditures, yet less control than had existed prior to 1976. The final provisions of the 1980 act, which were not implemented until October 1, 1981, increased state discretion even more. States were no longer required to gain HCFA approval for changes in reimbursement policy. Instead, they were merely required to submit assurances of compliance with the statute and to have them renewed each year the rates are in effect.

Although both nursing homes and hospitals experienced federal changes in their reimbursement requirements, state payments changed less for nursing homes than for hospitals following enactment of the legislation. Slow implementation of federal nursing home regulations is partly responsible for this discrepancy. More importantly, previous nursing home legislation granted the states a greater initial degree of control over rate setting. Several states have long placed caps on reimbursement rates for individual facilities at relatively low percentiles of industry costs, employed inflation factors which limited payment increases, and generally brought the rate of increase in each home's payments under control. Nonetheless, Connecticut, Georgia, Kentucky, Michigan, Nevada, Rhode Island, Virginia, and Washington altered their reimbursement policies following enactment of the 1980 legislation. These states reported limiting rates by decreasing profit factors, altering inflation allowances, changing treatment of sales, or reducing ceilings on total costs or particular cost centers.

In addition, several states added controls on the number of nursing home days they will pay for (in either skilled nursing or intermediate care facilities). California, South Dakota, and West Virginia limited the number of reserved bed days in nursing homes (days in which the patient is at home or otherwise out of the nursing home) they will pay for. Colorado, Connecticut, Kansas, Minnesota, and Utah began statewide screening of patients before admission.

Because states have had more success in controlling the rise in nursing home expenditures prior to OBRA, the net effect is that expenditures for skilled nursing facilities and intermediate care facilities grew by only slightly lower rates than in the previous two years, 6.8 percent and 7 percent respectively. The unduplicated count of recipients fell for both, however, particularly for SNF care.

4. Prescription Drugs

Prescription drug expenditures increased by less than 2 percent between 1981 and 1982, after having increased at annual rates of 15.8 percent in the previous two years. Such a decline is difficult to explain. The National Governors' Association reported that approximately twenty states (including

Florida, Georgia, Illinois, Massachusetts, Michigan, Missouri, and Wisconsin) applied or extended limits on drug coverage. These limits involved tightening the drug formulary to restrict the number and kinds of drugs covered, adopting lock-in arrangements for overusers, eliminating over the counter drugs, requiring the use of generic drugs, limiting the number of drugs per month, and imposing copayments on prescriptions. Prescription drugs are an optional service under Medicaid and aggressive action to curb expenditure growth is understandable. The extent of success is surprising, however. Part of the reduction is explained by fewer recipients, which could reflect the decline in eligibles and less use of ambulatory services. Nonetheless, the increase in expenditures per recipient (5.5%) is considerably less than the increase in the prescription drug component of the CPI (11.5%). Therefore, there was either a decline in utilization per recipient (perhaps because of changes in the composition of the eligible population, e.g., fewer elderly) or a change in payment rates which was less than the costs; in either case, the change in drug prices is not likely to be sustainable.

5. Intermediate Care Facilities for the Mentally Retarded

Intermediate Care Facilities for the Mentally Retarded constitute the most rapidly rising service covered by Medicaid. In 1982, ICF-MRs accounted for 12.1 percent of Medicaid spending and had grown at annual rates of over 42 percent between 1979 and 1981. In 1982, as for other services, the growth in expenditures on care in Intermediate Care Facilities for the Mentally Retarded fell substantially. Nonetheless, the annual rate of increase was still the highest of any Medicaid service, almost 18 percent. ICF-MR spending has grown in recent years because states upgraded facilities to meet Medicaid standards and thus become eligible for federal matching payments and because new beds were built to increase capacity in order to provide the care needed by state residents. To control these expenditures, states can reduce admissions, limit bed growth or discharge patients to community settings. Expenditures can also be controlled by using the reimbursement system to limit annual increases in payments. There is little information on what states did in this area. The result, however, was a dramatic reduction in growth. Again, whether it is sustainable is unknown.

6. Dental Care and Other Optional Services

The remaining optional services have always been vulnerable in times of fiscal stress. The National Governors' Association reported that several limits were placed on small optional services--services by dentists, chiropractors, podiatrists, optometrists, and the like. Some services were eliminated altogether, while others were limited to certain beneficiaries or made subject to copayments. Copayments have become increasingly important; California, Illinois, Iowa, and Michigan, in particular, have introduced copayments for large numbers of services. The end result was a 10 percent decline in expenditures for dental care and a substantial reduction in the rate of increase in spending on other optional services. Recipients fell by 5 percent in the case of dental care and by 2 percent for other services.

C. Distribution of Expenditure Reductions Across Eligibility Categories

The reductions in Medicaid expenditure growth that occurred in 1982 were distributed somewhat differently across aid categories. Whether it was the intention of states to have greater impacts on certain groups than others is not clear. Differential impacts could result because (1) changes in eligibility policy differed among aid groups and (2) each of the eligibility groups use a different mix of services and, therefore, policies which are designed to affect particular services yield a result which is distributed differently among eligibility groups.

Medicaid covers three very different groups of people: the aged, the blind and disabled, and AFDC adults and children. Almost all elderly are also covered by Medicare. For this group, Medicare pays for hospital care, both inpatient and outpatient, physician services, and some home health and skilled nursing services. Medicaid often pays premiums, covers cost-sharing obligations and finances other services, e.g., prescription drugs, dental care, and skilled and intermediate care facilities. The elderly Medicaid group differs from others because relatively little of their hospital and physician services are paid for by Medicaid; a large share of Medicaid expenditures on the elderly pays for care in skilled and intermediate care facilities. A final distinction is that eligibility for the aged is tied in most states to the SSI program, and the proportion of the elderly eligible for that program and therefore for Medicaid has been declining.

The second "program" covers the blind and disabled. These groups also have eligibility tied to the SSI program, but their numbers have been steadily increasing, particularly the disabled. These groups, particularly the disabled, are large users of all services. The average costs per eligible are even higher than for the aged because of intensive Medicaid outlays for both acute and long-term care services.

The AFDC population represents the third component of the Medicaid program. This group has been the target of both OBRA eligibility cutbacks as well as state efforts to limit enrollment. Dominated by women and children, they use primarily acute care services--inpatient hospital care, physician services, hospital outpatient and emergency room care, prescription drugs, and dental care. Most of these services were principal targets of program cutbacks.

This section begins with a brief summary of the choices in eligibility policy available to states before OBRA and afterward. We then describe recent trends in eligibility within the underlying categories.

Prior to OBRA, states were required to cover some eligibles, called "categorically eligible"--those who receive welfare cash assistance. These include individuals receiving aid through the Aid to Families with Dependent Children and in most cases, the Supplemental Security Income programs. Coverage of AFDC recipients is automatic but states have considerable discretion over income and resource standards. SSI is a federal program with minimum income standards for cash assistance to the aged, blind and disabled.

In addition, states may choose to cover other people for whom they also receive federal matching payments. A most important optional group is the "medically needy," persons whose incomes or assets are too high to allow them to receive welfare payments but who still are deemed unable to afford their medical bills. Medically needy coverage allows people to "spend down" their incomes by incurring medical bills sufficient to reduce their income to welfare levels or a specified percentage above those levels. These levels cannot exceed 133 percent of the AFDC payment standard. As of June 1982, 30 states covered the medically needy. Other "optionally categorically eligibles" include people eligible for but not receiving cash welfare assistance and individuals under age 21 who would be eligible for AFDC but do not qualify as dependent children (e.g., children in intact families or in foster homes).

There are two main ways states have historically (prior to October 1, 1981) limited Medicaid eligibility, either (1) controlling eligibility in the underlying welfare categories or (2) restricting groups covered specifically and optionally under Medicaid itself. The principal approach is through control over the amount of income and assets people may have and still receive AFDC. States vary widely in their generosity. Most states have failed to raise welfare standards to keep pace with general inflation. As poor people's incomes and assets have risen, more and more have surpassed the eligibility ceilings, dropped off the welfare rolls, and hence lost their Medicaid eligibility. Comparatively few states have even purported to "index" welfare levels to keep up with inflation; states experiencing budgetary crisis are especially likely to hold down increases in welfare ceilings at least temporarily. A 1984 Congressional report showed that real benefit levels declined in all but two states between 1980 and 1984, with an average real reduction of 33 percent.[9] With respect to aged, blind, or disabled people, states have had less discretion to hold down payment levels arbitrarily since the 1972 federal Social Security Act Amendments and the shift to a more federalized SSI system.

States may theoretically cut optional Medicaid eligibles, including people who are eligible for welfare but do not receive it, people who would be eligible for welfare if they were not institutionalized in a hospital or nursing home, and all children under age twenty-one who are financially eligible and thus need not be categorically eligible. These options were rarely employed. In addition, a state may change medically needy eligibility standards (e.g., by reducing from 33 percent to 10 percent the amount by which the income of Medicaid beneficiaries may surpass welfare cash-assistance limits). It may also drop medically needy coverage altogether. However, despite the relatively high cost of serving the medically needy, no state that has once established medically needy coverage has subsequently abolished it.

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[9] U.S. House of Representatives, Committee on Ways and Means, "Background Material and Data on Programs within the Jurisdiction of the Committee on Ways and Means," February 21, 1984, p. 306.

The 1981 act made a number of changes in eligibility. The most important were a gross income limit for AFDC eligibility equal to 150 percent of the state's need standard, a limit on child care deductions, a limit on work related expenses of $75 per month, a limit on the work incentive disregard to four months, and a national limit on assets. Other changes were described in section II.

The legislative changes affecting Medicaid eligibility for the aged, blind, and disabled were fairly limited. Only the provisions increasing flexibility for the coverage of the medically needy would directly affect those groups. Longer term trends indicate that aged SSI recipients have been declining while blind and disabled recipients have been increasing. Elderly recipients declined by 18.2 percent between 1975 and 1981.[10] Increasing social security benefit levels, moving the elderly out of poverty, are probably principally responsible for the decline in aged recipients. The number of disabled recipients under 65 has increased by 5.1 percent over the same period.[11] This probably reflects the tightening of social security eligibility requirements for the disabled. Those with sufficiently low incomes may have sought income support through SSI. The increase may also reflect increased willingness to participate in SSI among the blind and disabled.

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[10] U.S. House of Representatives, p. 388.

[11] U.S. House of Representatives, p. 388.

Changes in AFDC eligibility following OBRA will reflect factors other than that legislation. First, as discussed above, states have allowed benefit levels to increase very slowly and in all but two states there have been real reductions. This has the effect of eliminating some of those with earned income from eligibility. These low rates of increase in AFDC benefits would have undoubtedly continued, particularly in light of the economic recession. On the other hand, lower incomes for families with periods of unemployment--and loss of employer-paid health insurance--are likely to have kept eligibility levels higher than they otherwise would have been. Nationally, AFDC families fell by 1.6 percent between 1977 and 1978 and by 1.3 percent between 1978 and 1979. This changed to an increase of 4.2 percent in 1980 and 6.3 percent in 1981, perhaps in response to unemployment increases.[12]

Second, the entire range of federal aid cutbacks may have actually made Medicaid more attractive to state decision makers. Reductions in Title XX spending, for instance, may have made states more interested in expanding Medicaid coverage of services such as home health or family planning. Pressures on local government budgets may have in themselves increased state willingness to cover the medically needy, "Ribicoff kids," and AFDC-UP families under Medicaid. In both cases, the federal match, although slightly lower than before, may have been viewed as better than no match at all.

Finally, states could also offset the effects of OBRA by increasing their AFDC need standard. Since earned income is not permitted to exceed 150 percent of the need standard, states can "protect" the otherwise affected working AFDC recipient by raising the need standard. Recent data provided by the House Ways and Means Committee indicated that many states increased their need standards after the passage of OBRA.[13]

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[12] U.S. House of Representatives, p. 311.

Tables 7 and 8 provide data from two different sources on two different measures. Table 7 provides data on changes in average monthly enrollees, expenditures, and expenditures per enrollee between 1981 and 1982. The eligibility data were derived from the HCFA 120 report. Data on eligibility was available for 31 states. Information on expenditures for the same states was available from the HCFA-2082 data base, as adjusted with methods described in section III. The data in Table 8 was taken from the combined HCFA-64/2082 data set.

Table 7 shows that the number of enrollees of AFDC adults and children fell by 5.3 percent. This would seem to reflect the effects of both the OBRA mandated cuts as well as continued restraints on eligibility standards by states. Eligibility of the aged declined by 4.7 percent, but this probably reflects primarily the continuation of long-term trends of increasing means among the elderly. Eligibility of the blind and disabled fell slightly, presumably resulting from constraints on medically needy income standards which are tied to AFDC payment standards.

Changes in expenditures per eligible were fairly comparable across groups, with increases between 1981 and 1982 ranging from 8.3 percent for the AFDC population to 10.7 percent for the blind and disabled. The differential rates of decline in eligibility have led to the lower rates of increase in

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[13] U.S. House of Representatives, pp. 304-305.

Table 7

Medicaid Enrollment and Expenditure Increases

	1981	1982	% Change
Aged Enrollees			
Average Monthly Enrollees	1,808,336	1,722,989	-4.72
Expenditures per Enrollee	3,423	3,733	9.05
Expenditures (in millions)	6,191	6,433	3.91
Blind and Disabled Enrollees			
Average Monthly Enrollees	1,625,461	1,602,399	-1.42
Expenditures per Enrollee	3,582	3,966	10.74
Expenditures (in millions)	5,822	6,356	9.17
AFDC Adults and Children Enrollees			
Average Monthly Enrollees	7,894,879	7,473,146	-5.34
Expenditures per Enrollee	668	724	8.33
Expenditures (in millions)	5,277	5,411	2.54

Source: Enrollment was estimated based on the 31 states which provided consistent data during 1981 and 1982 and the HCFA-120 report. Expenditure data was taken from the HCFA-2082 report for the same states. The states are as follows: Alabama, Arkansas, California, Colorado, Delaware, Florida, Georgia, Idaho, Illinois, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Minnesota, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Texas, Utah, Virginia and Wisconsin.

Table 8

Medicaid Recipients and Expenditures, By Eligibility Group, 1979 - 1982

	Recipients 1979 (in millions)	Expenditures 1979 (in millions)	% Change Recipients		% Change Expenditures/Recipient		% Change Expenditures	
			1979-81	1981-82	1979-81	1981-82	1979-81	1981-82
Aged	3.4	7030.4	1.67	-2.23	18.25	8.13	20.22	5.72
Blind & Disabled	2.7	6792.6	3.38	-1.04	14.82	10.48	18.70	9.30
Children	8.7	2835.4	3.03	-3.79	8.75	1.85	12.04	-2.01
Adults	4.3	2967.4	5.96	0.00	7.71	7.71	14.14	7.71
Other Title XIX	1.1	1332.6	-	3.15	-	8.75	3.08	12.18
TOTAL	20.1	20,299.4	2.44	-2.06	14.50	8.60	17.30	6.37

Source: HCFA 2082 and HCFA 64 Expenditure Reports.

expenditures for the AFDC-related and aged groups relative to the blind and disabled. Stated differently, AFDC adults and children experienced the lowest rate of growth in expenditures, but this seems largely due to the decline in eligibility. Similarly, the low rate of increase in expenditures on the aged also seems primarily due to the decline in eligibility. Increases in expenditures per eligible for all groups are low, however, by historical standards.

Table 8, based on 50 state expenditure and recipient data, also shows that there was a slight shift in Medicaid spending, away from children and toward the blind and disabled. Expenditures on the blind and disabled increased by 9.3 percent while expenditures on children decreased by 2 percent. Over 20 percent of expenditures on the blind and disabled group are for services in ICF-MRs, which partially accounts for the higher expenditures for this group. The number of children recipients fell by almost 4 percent. Children are also relatively heavy users of physician services, prescription drugs, and dental care, all services which were particularly restricted by Medicaid programs. Expenditures for the elderly rose by only 5.7 percent, principally because of the 2.2 percent drop in recipients. The elderly are very heavy users of nursing home care, in both skilled and intermediate care facilities. Neither benefit increased very rapidly in 1982. Expenditures on adults increased by 7.7 percent, primarily because recipients did not fall. This may be related to the eligibility increasing effects of the recession which could have added two-parent families in AFDC-UP states and the elimination of some children in the 18-21 year age category. Other Title XIX expenditures increased, reflecting increased willingness of states to provide services to children in intact families.

V. DETERMINANTS OF MEDICAID EXPENDITURES

There are two very different ways to analyze the determinants of Medicaid expenditures. The first type of model states that Medicaid expenditures depend on a variety of demographic and economic characteristics that affect the demand for services, a set of factors that affect the supply of services to Medicaid eligibles and a set of Medicaid policy variables. Estimation of the parameters of this model would reveal how the level of Medicaid expenditures is affected by different Medicaid policies.

This model, however, does not explain how Medicaid policies are determined to begin with. A state cannot precisely choose how much to spend on Medicaid. Rather, it sets a spending target and selects a set of policies to achieve its spending objectives. The policy choices are determined by a different set of factors than those in the first model.

The second model postulates that the nature, generosity, etc., of Medicaid policies depend on the state's desired expenditures. The desired level of expenditures will depend on the state's ability to spend, e.g., its income or wealth, and its tastes or preferences. The latter presumably varies among regions of the country and with the demographic characteristics of the state's population. Its desired expenditures also depend on the price to the state of Medicaid services or the share of Medicaid costs borne by the state; this is represented most directly by the federal matching rate. Finally, the desired level of expenditures may be influenced by providers, e.g., physicians, teaching hospitals, who will presumably argue for more generous policies which will in turn lead to a higher level of expenditures. Further elaboration of these modeling approaches is found in Appendix B.

A. Estimating Equations

The second model described above provides the conceptual framework for estimating a series of expenditure equations. There are a number of objectives for this analysis. The first is to disentangle the effects of income, e.g., ability to pay, from the effect of federal matching contributions on Medicaid spending.

Second, we wish to see whether these explanatory variables have different effects on acute care or long term care services and on the level and kinds of services provided to the aged, the blind and disabled, and AFDC adults and children. Separate equations are estimated for each. Acute care services include hospital inpatient care, physician services, hospital outpatient care, prescription drugs, dental services and a large number of other optional services. Long term care includes skilled nursing facilities, intermediate care facilities, intermediate care facilities for the mentally retarded, hospitals for the mentally ill and home health services. In neither case are distinctions completely clear. Physician services, prescription drugs, etc., provided to a nursing home patient are considered acute care services while skilled nursing care or home health services provided to a noninstitutionalized individual are regarded as long term care. This is an unfortunate limitation of the data sources.

The distinctions by eligibility group are clearer. The aged are large users of skilled nursing and intermediate care services as well as prescription drugs and various optional services. Their use of the most expensive ambulatory services is covered by Medicare. The blind and disabled are large users of all services. The AFDC adults and children are primarily users of ambulatory care services and have substantially lower utilization rates than the disabled.

The third objective is to see if federal matching contributions stimulate increased Medicaid spending or if they substitute for spending the state would have otherwise made on their own.

The equations we report can be summarized as follows:

1. Total Federal & State Medicaid Expenditures per capita
2. Total Acute Care Expenditures per capita
3. Total Long Term Care Expenditures per capita
4. Total Expenditures per capita - Aged
5. Total Expenditures per capita - Blind and Disabled
6. Total Expenditures per capita - AFDC Adults and Children

Four years of Medicaid expenditure data are used, 1979 through 1982. The expenditure data as reported in the HCFA-2082 expenditure reports were adjusted to be consistent with the HCFA-64 expenditure data. These adjustments are discussed in Section III. Expenditures as well as other monetary variables, e.g., income, are deflated using the Implicit GNP Price Deflator to be equivalent in 1979 dollars.[14]

B. Explanatory Variables

The models described above aggregate over many different kinds of individuals and a wide variety of services. The set of variables explaining expenditures on each is likely to be different. Given the level of aggregation, and the number of observations available, a limited set of variables is employed to predict expenditures. A similar set of variables is used in each equation, despite the fact the effects are likely to be different.

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[14] The use of the Implicit GNP Price Deflator results in deflating Medicaid expenditures to constant dollars of outlays from the viewpoint of the taxpayer or state budget. This is not the same as constant dollar measures of medical care provided through Medicaid. For example, if medical prices paid in Medicaid programs exceed the GNP price deflator, real medical services will be declining and vice versa.

1. Income Per Taxpayer

The measure of income used is income per taxpayer, equal to adjusted gross income in the state divided by the number of taxpayers. This variable is used instead of income per capita following the lead of Granneman and Orr.[15] It is preferred as a better measure of voter-taxpayers capacity for spending on public programs. For example, the variable captures both the reductions in income and changes in the number of workers in recent years in response to the recession and is therefore more sensitive to changing economic conditions that is income per capita. The variable also has the advantage for our purposes of being less correlated with the federal matching contribution variables described below.

An alternative measure of ability to pay is the tax capacity index constructed by the Advisory Council of Intergovernmental Relations. The measure captures all potential revenue sources including personal and corporate income, sales, property, severances, estates, and gifts. While the measure is conceptually appealing as a basis, for example, for determining levels of federal grants in aid, the fact that states have made very different decisions

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15. Granneman, T.W., "Reforming National Health Programs for the Poor," in Pauly, M.V., ed., National Health Insurance, (Washington, D.C.: American Enterprise Institute, 1980), pp. 104-36.

Granneman, T.W., "The Demand for Publicly Financed Medical Care: The Role of Interdependent Preferences," Ph.D. dissertation, Northwestern University, 1979).

Orr, L.L., "Income Transfers as a Public Good: An Application to AFDC," American Economic Review, June 1976.

on use of these revenue sources make the variable less useful in explaining state expenditures.[16]

The income variable captures three effects. The most important is the effect of income on the willingness to spend on Medicaid. Increases in taxpayer income increases state revenues (increases budget surpluses or reduces deficits) permitting higher expenditures. (We rejected the idea of using state budget surplus positions as an explanatory variable because it is endogenous.) The hypothesis is that income per taxpayer will be positively related to Medicaid expenditures. Second, the income variable is correlated with poverty and thus need. As income declines, the need for services and Medicaid enrollment should increase. Finally, income affects the private demand for services. As income increases (decreases), the demand for services should increase (decrease), reducing (increasing) the availability of services for Medicaid patients. In these latter two cases, income should be inversely related to expenditures.

The effect of income on Medicaid expenditures is therefore the net impact of offsetting influences. Reductions in income increase provider availability (in Medicaid markets with excess demand) and increase Medicaid enrollment, ceteris paribus; both impacts should increase expenditures. The impact of income on tax revenues and ability to finance public expenditures should be positively related to expenditures. We did not employ a separate measure of need, such as the percentage of the population in poverty, because of its high correlation with income. Since the hypothesized effect of increased need on expenditures is in the opposite direction from the effect of reduced tax revenues, the result should be that the effect of taxpayer income on spending will be understated.

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[16] J. Cromwell, op. cit.

It is not clear how serious this problem is. States with high poverty populations tend to have lower Medicaid spending;[17] moreover, during the recent recession, Medicaid payment standards were frozen in many states while poverty rates were increasing even prior to OBRA.[18] Thus, states do not appear to respond in a clear way to need. More likely, there is a queue of needy individuals in every state. Our model suggests that how far down this queue a state goes is determined by income, price, etc.

2. Federal Matching Rates

The federal matching rate is entered directly into each equation. The variable can be viewed as the relative price to taxpayers of Medicaid services vs. other goods and services, with the state paying less than full price for Medicaid services and full price for others. The federal matching contribution varies inversely with state per capita income relative to the national average per capita income; the matching rates are calculated with a two-year lag.

The effect of OBRA was to reduce the matching contribution by 3 percent for all states in 1982. (See section II above.) The 3 percent reduction could be offset if the state achieved reductions in fraud and abuse of specified amounts, had a hospital rate setting program or had higher unemployment. We used the latter two offsets to reduce the 3 percent; the first was not used because it is not exogenous. States could also avoid the 3 percent reduction by staying below the expenditure target; again because state expenditure increases are what we are trying to explain, it is inappropriate to consider them in calculating the explanatory variables.

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[17] Jerry Cromwell et al., "The Evolution of State Medicaid Programs," Center for Health Economics Research, June 1984.

[18] Ian Hill, "Medicaid Eligibility: A Descriptive Report of OBRA, TEFRA, and DEFRA Provisions and State Responses," Syracuse University, October 1984.

In reality, the incentives were more complicated. For example, in 1982 the state faced a matching rate reduced by 3 percent if its expenditures exceed the target, 100 percent marginal price for expenditures between 109 percent and 106 percent (assuming no offsets), and the historical higher matching rate if expenditures are less than 106 percent of the base. Thus, the state faced a complicated price schedule. Because states have a very difficult time precisely forecasting expenditure outcomes from year to year, we suspect a state would not respond to the obvious discontinuity. We therefore assume the state behaves as if there is a 3 percent matching rate reduction.

It should also be noted that because the federal matching rate is calculated on the basis of state per capita income relative to national average per capita income, with a two year time lag, a state could have an increase which largely offsets the OBRA reduction. One state, Massachusetts, actually had an increase in their matching rate in 1982.

Our hypothesis is that the higher the federal matching contribution, the higher state spending; similarly reductions in federal matching contributions will reduce its Medicaid expenditures.

3. Market Characteristics

The availability of providers is posited to affect Medicaid expenditures in two ways. First, we discussed the possibility of excess demand and accompanying access problems for Medicaid patients. As supply of providers increases, excess demand is reduced and access and utilization increased. Second, providers can have an independent effect on the policy formation process. Three measures of provider availability are used: physicians per capita, hospital beds per capita, and nursing home beds per capita.

Physician Supply. We hypothesize that as physician supply increases, access barriers will be eased and Medicaid expenditures will increase. In this model, physician supply serves as a proxy for the availability of many other related services, including therapists, dental care, pharmacies, etc. Physician supply is also a reasonably good proxy for the presence of teaching hospitals, which are both more costly and more likely to admit Medicaid patients. If access barriers exist, this variable should be strongly related to Medicaid expenditures.

Hospital Beds Per Capita. Hospital beds per capita are used to control for the availability of hospital inpatient services. Hospital beds are much more evenly distributed across the country than are physicians or nursing homes, so this variable is much less likely to capture access problems.

Nursing Home Beds Per Capita. Nursing home bed supply has been shown by Scanlon to be an important determinant of access by Medicaid patients to nursing home care[19]. The more beds the greater Medicaid nursing home utilization and the higher Medicaid expenditures.

Providers and Medicaid Policy. Physicians, hospital and nursing home associations are likely to play an independent role in influencing the set of policies adopted to control Medicaid spending. The greater the supply of providers, the more dependent they are on public programs for revenues.

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Therefore, increased supply increases their stake in assuring the generosity of payment policy and the weakness of utilization control or other regulatory policies.

4. Demographic Characteristics

A set of demographic characteristic variables is used to control for the need for services among the Medicaid population and for the demand for services among the non-Medicaid population. In addition, as indicated by our model, these variables may also influence the state taxpayers' willingness to spend on Medicaid services, ceteris paribus. Unfortunately, the data limitations do not permit separate variables to be constructed for each variable for each state's Medicaid population. Each variable is measured as the percent of the state population with the specified characteristics. Therefore, care must be taken in interpreting the effects of each variable.

Age. The age variables included in the regressions are the percent of the population under 18 and the percent over 75. A younger population should result in less demand for acute care services in the general population; therefore Medicaid utilization should be higher, ceteris paribus. The effect of the percent over 75 variable is somewhat more ambiguous. The greater the population over 75, the greater the demand for acute care services by the general population and the less access for Medicaid patients to acute care services. However, the greater the percentage over 75, the greater the demand for nursing home beds. Since even the middle class elderly become eligible for Medicaid if they enter nursing homes, this variable should be positively related to nursing home use. At the same time, the age distribution of the state's population may affect willingness to spend on Medicaid services, e.g., the benefits from public spending may be viewed as higher if the state has a younger population.

Education. The education variable is the percent of the population completing high school. This variable should be negatively related to Medicaid utilization for two reasons. First, the higher the education level, the greater private health service utilization; the private demand curve shifts outward, reducing Medicaid access. Second, education tends to be related to health status; the less well educated the state's population, the more individuals will need publicly financed care.

Race. The percent non-white is used to measure the racial mix c the state's population for publicly supported services. Non-whites have poorer health status than whites in general. Thus, the greater the percent non-white the greater the need for and utilization of Medicaid services. Similarly states with greater proportions of non-whites may be more supportive of public spending on programs such as Medicaid.

Urban-Rural. The percentage of the population living in urban areas measures general access to services as well as willingness to spend on public programs. All else being equal, urban populations should have greater access, e.g., lower time costs, for a given supply of providers; however, increased access for non-Medicaid populations can mean less access for Medicaid eligibles, ceteris paribus.

5. Region

A set of regional dummy variables are used to control for tastes or preferences toward public medical care financing. There is no obvious way to group states. We use four groupings: East, Midwest, South and West. The

East has been traditionally generous and the South penurious. Midwestern and Western states have been somewhat mixed, i.e., in the middle.

6. Time

Because four years of data are used, time dummies are used to control for changes over time which could affect Medicaid spending. In the discussion of the Medicaid expenditure model in section V, we argued that federal Medicaid regulations could make it difficult for states to reach their desired expenditure targets, given income, price and other factors. Policies which eased these constraints could reduce Medicaid expenditures. For example, the OBRA legislation reduced a number of federal constraints on state policy. OBRA also directly affected Medicaid eligibility. If the legislation was effective we might expect to see the 1982 time dummy have a value below the 1981 value. On the other hand, other unmeasured factors could force Medicaid spending upward, overwhelming the OBRA effect.

One such unmeasured factor is substitution by states of Medicaid dollars for other state spending, e.g., shifting of services provided by state or county funds on to Medicaid to obtain federal matching support. Another is any difference between the rate of medical care inflation and general inflation. States can control rates they pay for most services and do not have to accept the rate of medical care inflation as a given. However, a positive sign on the time variables could reflect some increases in medical care costs states choose to acknowledge in establishing payment rates.

7. Summary

The means and standard deviations of the variables used in the analysis are provided in Table 9.

Table 9

Means and Standard Deviations of Variables

Variable	Acronym	Mean	Standard Deviation
Total Medicaid Expenditures Per Capita	TMEDEXP	81.95	36.53
Total Acute Care Expenditures Per Capita	TACEXP	41.39	25.03
Total Long Term Care Expenditures Per Capita	TLTCEXP	40.56	18.93
Total Expenditures Per Capita --Aged	TAGEDEXP	31.43	13.82
Total Expenditures Per Capita --Blind & Disabled	TBDEXP	27.33	14.10
Total Expenditures Per Capita --Adults & Children	TAFDCEXP	23.18	14.76
Percent of State Population under 18	PUND18	.287	.023
Percent of State Population over 75	POV75	.043	.010
Percent of State Population Finishing High School	PFINHS	.673	.075
Percent of State Population Non-White	PNONWH	.156	.143
Percent of State Population Living in Urban Area	PURBAN	.673	.148
Physicians Per 10,000 Persons	MDS	14.48	4.88
Hospital Beds 10,000 Persons	HBEDS	45.72	10.24
Nursing Home Beds Per 1,000 Elderly Persons	NHBEDS	57.78	18.87
Real Income Per Taxpayer	INCTAXP	$15347.87	$1170.58
Federal Matching Rate	FEDMATCH	.587	.081

Note: All Expenditure Variables and Income Per Taxpayer are deflated to 1979 dollars.

C. Methods

The modelling uses four years of data on each of fifty states. Using pooled cross-section time series data allows us to estimate unique intercepts for each cross-sectional unit (or grouping of units) as well as for each time-period. This approach can be thought of as a variant of the error components model in which the time and cross-section components are non-random or fixed. Kmenta discusses this method as well as the more general error components model.[20] As he points out, a fixed-effects model can be estimated by introducing dummy variables into the regression equation and estimating with OLS. In this study, we include both time and regional dummies in each expenditure equation.

A second issue is the appropriate time lag of the explanatory variables. Medicaid expenditures are available for federal fiscal years, October through September of each year. Demographic and market characteristic variables are available for the corresponding calendar year. The federal matching rate is available for the relevant fiscal year. The income per taxpayer variable presents a more complex issue. It is unclear whether states respond to estimated current income to make expenditure decisions or to lagged income. For example, tax revenues decline as income declines, reducing state budget surpluses or threatening budget deficits. Reductions in budget surpluses or increases in deficits take time to develop. Therefore, some lag in the income variable is appropriate. Whether the lag should be six months, a year, two years, etc., is not clear. This analysis uses a lag of nine months. That is, Medicaid expenditures in a given fiscal year are assumed to be a function of income per taxpayer in the previous calendar year, e.g., FY 1982 Medicaid expenditures are a function of CY 1981 income per taxpayer.

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[20] Kmenta, J., Elements of Econometrics (New York: The Macmillan Company, 1971).

The problem of the appropriate lag between income flows and expenditure decisions makes it difficult to specify an expenditure change model. That is, how quickly reductions in income that reduce state budget surpluses or threaten to impose deficits are translated into action on spending will vary across states depending on state budget processes. These complexities in the lag structure make it difficult to estimate a first difference model in this context. Unfortunately, the cross-sectional analysis that is possible is somewhat more difficult to translate into predictions of short-term responses.

D. Results

This section describes the results of the econometric analysis. The dependent variables are Medicaid spending per capita for all services and for subcategories: expenditures per capita for acute and long term care and expenditures per capita on the aged, blind and disabled and AFDC adults and children. Because of the effects of multicolinearity on the income, matching rate, and supply variable coefficients, we present results with and without the supply variables. The results are provided in Tables 10 and 11. The results in general show that income was more important than the federal matching contributions in affecting Medicaid spending in the period studied. The market characteristic variables demonstrate the importance of physician and nursing home supply on Medicaid beneficiaries' access to services. The time variables indicate that Medicaid spending continued to increase in 1982, once other factors are held constant.

Table 10

Determinants of State Medicaid Spending - Regression Results:
Total, Acute Care and Long Term Care Expenditures[a]
(T-ratios in parentheses)

Dependent Variables

	TMEDEXP		TACEXP		TLTCEXP	
	(1)	(2)	(1)	(2)	(1)	(2)
Intercept	-11.86** (-2.18)	-13.46** (-2.10)	-4.32 (-0.69)	-8.31 (-1.17)	-8.32 (-1.60)	-11.09* (-1.89)
INCTAXP	1.15** (2.08)	1.72** (2.72)	0.55 (0.88)	1.16* (1.65)	1.02* (1.86)	1.70** (2.80)
FEDMATCH	0.95** (2.38)	1.31** (2.98)	0.29 (0.65)	0.90* (1.90)	0.50 (1.49)	0.84** (2.24)
PUND18	-0.91 (1.60)	-1.57*** (-2.90)	-0.15 (-0.24)	-2.06*** (-3.90)	-- --	-- --
POV75	-0.19 (-1.63)	-0.02 (-0.14)	0.87* (1.87)	1.57*** (3.11)	-0.26 (-0.51)	1.20** (2.32)
PFINHS	-0.79** (-1.96)	-0.34 (-0.73)	-1.65*** (-3.65)	-1.47*** (-2.88)	-0.21 (0.44)	0.44 (0.82)
PNONWH	0.08** (2.17)	0.09** (2.00)	0.16*** (3.78)	0.22*** (4.67)	0.04 (0.77)	0.02 (0.32)
PURBAN	-0.26* (-1.70)	0.13 (0.80)	-0.26 (-1.57)	0.11 (0.66)	-0.005 (-0.03)	0.04 (0.22)
MDS	0.99*** (7.07)	-- --	1.11*** (7.26)	-- --	-- --	-- --
HBEDS	-0.05 (-0.37)	-- --	0.03 (0.21)	-- --	-- --	-- --
NHBEDS	0.38*** (5.68)	-- --	-- --	-- --	0.58*** (7.15)	-- --
EAST	0.11 (1.32)	0.28*** (3.81)	0.11 (1.11)	0.40*** (4.87)	0.45*** (6.20)	0.35*** (4.36)
SOUTH	-0.30*** (-3.32)	-0.42*** (-4.13)	-0.32*** (-2.94)	-0.35*** (-2.98)	-0.07 (0.68)	-0.15 (-1.27)
WEST	-0.17* (-1.91)	-0.25*** (-2.76)	0.02 (0.23)	0.12 (1.12)	-0.20** (-2.04)	-0.27* (-2.41)
1980	0.03 (0.66)	0.08 (1.26)	0.04 (0.67)	0.09 (1.31)	0.05 (0.88)	0.06 (0.88)
1981	0.09 (1.49)	0.19*** (2.79)	0.06 (0.92)	0.17** (2.36)	0.14* (2.12)	0.18* (2.35)
1982	0.15** (2.00)	0.26*** (3.10)	0.05 (0.63)	0.19** (2.00)	0.22** (2.72)	0.28*** (3.16)
$\bar{R}^2$	0.61	0.46	0.64	0.54	0.50	0.36

a. Column 1 presents full model. Column 2 presents estimates for income and the federal match excluding the provider availability variables (MDS, HBEDS, and NHBEDS).

* Significant at the .10 level.
** Significant at the .05 level.
*** Significant at the .01 level.

Table 11

Determinants of State Medicaid Spending - Regression Results: Expenditures on the Aged, Blind and Disabled and AFDC Adults & Children[a]

(T-ratios in Parentheses)

Dependent Variables

	Aged		Blind and Disabled		AFDC	
	(1)	(2)	(1)	(2)	(1)	(2)
Intercept	-5.98	-2.10	-17.59**	-19.20**	-7.48	-14.65*
	(-1.13)	(-0.38)	(-2.32)	(-2.33)	(-1.08)	(-1.79)
INCTAXP	0.74	0.74	1.78**	2.21***	0.74	1.65**
	(0.90)	(1.29)	(2.35)	(2.70)	(1.07)	(2.03)
FEDMATCH	0.30	0.30	1.67***	2.04***	-0.11	0.87
	(0.71)	(0.80)	(3.10)	(3.78)	(-0.23)	(1.63)
UND18	--	--	-1.10	-1.87***	0.79	-1.87***
	--	--	(-1.50)	(-3.11)	(1.19)	(-3.13)
POV75	-0.67	1.49***	--	--	--	--
	(-1.27)	(3.05)	--	--	--	--
PFINHS	0.03	0.38	-0.94*	-0.60	-1.18**	-0.87
	(0.07)	(0.75)	(-1.70)	(-1.01)	(-2.34)	(-1.47)
PNONWH	0.04	0.06	0.10	0.08*	0.15***	0.19***
	(0.91)	(1.30)	(2.18)	(1.68)	(3.43)	(3.74)
PURBAN	-0.34*	-0.08	-0.08	0.43**	-0.61***	-0.03
	(-2.04)	(-0.49)	(-0.42)	(2.12)	(-3.33)	(-0.15)
MDS	0.58***	--	1.01***	--	1.51***	--
	(3.82)	--	(5.47)	--	(8.97)	--
HBEDS	0.04	--	-0.27	--	-0.02	--
	(0.30)	--	(-1.38)	--	(-0.10)	--
NHBEDS	0.61***	--	0.37***	--	0.04	--
	(7.38)	--	(4.13)	--	(0.50)	--
EAST	0.36***	0.45***	-0.01	0.20**	-0.03	0.31***
	(3.89)	(5.99)	(-0.13)	(2.36)	(-0.25)	(3.64)
SOUTH	0.08	0.06	-0.40***	-0.51***	-0.48***	-0.61***
	(0.77)	(0.53)	(-3.19)	(-4.09)	(-4.23)	(-4.97)
WEST	-0.16	-0.18*	-0.15	-0.20*	-0.19*	-0.17*
	(-1.46)	(-1.74)	(-1.21)	(-1.91)	(-1.74)	(-1.69)
1980	0.02	0.05	0.05	0.09	0.04	0.10
	(0.39)	(0.72)	(0.65)	(1.16)	(0.62)	(1.36)
1981	0.09	0.14**	0.13	0.23***	0.02	0.18**
	(1.38)	(2.04)	(1.61)	(2.67)	(0.31)	(2.09)
1982	0.10	0.16*	0.26**	0.37***	-0.01	0.20*
	(1.33)	(1.93)	(2.52)	(3.35)	(-0.12)	(1.85)
$\bar{R}^2$	0.52		0.45	0.33	0.62	0.45

a. Column 1 presents full model. Column 2 presents estimates for income and the federal match excluding the provider availability variables (MDS, HBEDS, and NHBEDS).

* Significant at the .10 level.
** Significant at the .05 level.
*** Significant at the .01 level.

1. Income Per Taxpayer

The income variable is significant in the total expenditure equations with an elasticity of about 1.2. The variable is significant in the long term care equations but not in the acute care relationship. The elasticity in the long-term care equation was 1.0.

As noted earlier, a higher degree of colinearity between income and the provider supply variables makes it difficult to obtain reliable parameter estimates (i.e., estimates with low standard errors). Table 11 also presents elasticity estimates and significance tests when supply variables are excluded. The elasticity estimates increase in all equations but particularly in the acute care regressions. Note especially that the elasticities increase in magnitude across the three equations when supply variables are omitted. The theoretical model presented earlier strongly suggests that supply variables belong in the equations. However, we cannot conclude that income is not an important determinant of acute care spending.

The income variable was positive in each of the eligibility group equations but significant only in the equations for the blind and disabled. This implies that expansion of services for the mentally ill, mentally retarded, and other disabled individuals, is related to income. When the supply variables are excluded, the income elasticities increase, particularly in the blind and disabled and AFDC equations because of the importance of acute care to these two groups. We conclude that income is important in affecting spending for the blind and disabled and for the AFDC populations, but less so for the aged.

2. Federal Matching Rate

The federal matching rate is also positively related to Medicaid expenditures but is less often significant and has lower elasticities in the disaggregated spending equations. The matching rate variable is significant in the total expenditure equation with an elasticity of 0.95. The variable is not significant in either the acute care or long term care equations, though the T-statistics are relatively high in the latter.

Again the multicolinearity problem complicates interpretation of the results. Table 11 provides elasticity estimates in equations with the supply variables removed, the result being that the matching rate variables improve in all equations where physician supply was important. (This occurs presumably because the matching rate, like physician supply, depends on income in the state.) With the supply variables excluded, the matching rate variable is significant in both the acute care and long term care equations as well as in the total expenditure regression. Again, theory supports the notion that the supply variables should not be excluded. However, it is not possible to obtain reliable parameter estimates. We therefore conclude that matching rates affect both acute care and long term care spending with no evidence of differential effects.

In the eligibility group equations the variable is only significant for the blind and disabled. With the supply variables removed, the matching rate variable´s coefficient increases in magnitude in both the blind and disabled and AFDC equations.

The final point is that the elasticity estimates with supply variables excluded consistently show that the influence of income is greater than that of matching rates. This holds in both specifications and in both types of service and each eligibility group.

3. Time Variables

The time dummies should capture any independent changes that affect Medicaid expenditures which are also correlated with time. One purpose in including the time variables is testing whether 1982 was truly "different." Did the OBRA legislation result in lower expenditures when all other variables are accounted for? The results indicate that the underlying trend in Medicaid spending remains upward. The value of the 1982 variable was 0.15 indicating that Medicaid real spending per capita was about 15 percent higher in 1982 than in 1979 and about 7 percent higher than in 1981. The time variable was positive but not significant in the acute care equation, seemingly indicating the absence of a downward effect in real spending. However, the table below shows that inflation in medical care prices outstripped general price inflation, as measured by the GNP deflator, in 1982.

Medical Care and General Inflation
1979-1982

	1979-1980	1980-1981	1981-1982
Change in GNP Implicit Price Deflator	9.1%	9.4%	6.8%
Change in Medical Care Component of the CPI	11.5%	9.4%	12.1%

The fact that the time variable in 1982 was not significantly different from zero in a year of particularly large medical care price inflation suggests that states may have been more successful in controlling acute care expenditures than they might have been without OBRA. This suggests that 1982 may have seen either greater control over payment rates, or reductions in eligibility or utilization rates which overcame medical care price increases. That is, without OBRA, acute care expenditures may have risen at higher rates than were observed.

In the long term care equation, the variable was significant with a coefficient of 0.22 or about 22 percent higher in 1982 than in 1979. Since Medicaid reimbursement rates are clearly controlled by Medicaid and are typically tied to the CPI or more restrictive trend factors, e.g., the HCFA market basket index, medical care price increases are probably less of a factor. Rather, the positive effect on long-term care expenditures probably reflects strong underlying tendencies toward growth, particularly for Intermediate Care Facilities for the Mentally Retarded.

In the eligibility group equations the time variable was positive but not quite significant in the aged equations, positive and significant in the blind and disabled equations and quite insignificant in the AFDC adults and children equation. The positive effects on the time variables in the long term care and blind and disabled equations indicates that underlying upward pressures offset the cost reducing effects of declining income and the federal matching rate reductions.

4. Market Characteristics

The physicians per capita and nursing home beds per capita variables are strongly significant, indicating an important role in explaining interstate variations in Medicaid expenditures. The hospital beds per capita variable was never statistically significant, probably because of the general abundance of hospital beds throughout the U.S.

The physician supply variable was significant in the total expenditure equation with an elasticity of 0.99 depending on the specification. In the acute care equations, physician supply was significant with an elasticity of 1.1. The variable was highly significant in each of the eligibility group equations with elasticities of 0.58 for the aged, about 1.0 for the blind and disabled, and 1.5 for the AFDC populations. The strong positive results and high elasticities suggest that access improves substantially as physician supply increases. This is consistent with the view that Medicaid eligibles, particularly AFDC adults and children, are at the end of a queue. (The effect on the aged is weaker because of Medicare coverage.) As physician supply increases, physicians become more and more willing to treat Medicaid patients. This increases use not only of physician services but of hospital inpatient and outpatient services, prescription drugs, etc. The strong effects of physician supply may also reflect the influence of physicians (and related providers such as teaching hospitals, dentists, pharmacists, etc.; the supply of which tends to be higher when physician supply is higher) on Medicaid policy formation. As suggested earlier, as physician supply (as well as of other providers) increases, the importance of Medicaid revenues to the individual physician increases. It is impossible in this analysis to distinguish the effects.

Nursing home bed supply has a similarly strong effect on expenditures. The variable is significant in the total Medicaid expenditure equation and in the long term care, aged, and blind and disabled equations. Scanlon has shown in other research that nursing homes seek private patients first, then fill beds with Medicaid patients.[21] The findings reported here are consistent with that view. As nursing home bed supply increases, Medicaid use and expenditures increase. A 10 percent increase in nursing home bed supply appears to result in about a 4 percent increase in total Medicaid spending, and about a 6 percent increase in long term care spending. A similar increase in beds results in a 6 percent increase in spending on the aged and a 4 percent increase in spending on the blind and disabled. Once again, part of the effect may reflect the influence of nursing homes on Medicaid policy decisions.[22]

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5. Demographic Characteristics

The demographic variables with interesting results were the education and race variables. The percent finishing high school was negative and significant in several equations, including total expenditures, acute care, and the blind and disabled and AFDC eligibility group equation. As suggested earlier, the variable measures the education level of the entire state population. Thus, the results could reflect the positive effect of education on utilization by private patients which thereby reduces access. Alternatively, it could reflect the relationship between education and health status among low income populations, therefore increasing the need for medical services that are publicly supported.

The race variable is positive and significant in several equations. It is highly significant in the acute care and AFDC population equations. The variable quite likely captures the effect of poorer health status among low income blacks. The results could also reflect greater political support of public programs in states with higher proportions of non-whites.

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[22] Medicaid long term care expenditures and nursing home beds per capita may be jointly determined--that is, higher Medicaid spending could result in more nursing home beds. If so, the results reported here could contain some degree of bias.

6. Region

The region variables yield some interesting results. The equations with the supply excluded provide an indicator of regional differences in spending, including differences attributable to the availability of more resources. The results then indicate differences in spending among regions after controlling for differences in income, matching rates, and demographic characteristics. The dummy variables compare each of the regions to the midwest. The results of these equations show that, relative to the midwest, expenditures are higher in the east (28 percent) and lower in the south (42 percent) and west (25 percent).

The east had higher expenditures than the midwest for both acute care (40 percent) and long-term care (35 percent). The south was significantly lower than the midwest in spending on acute care (35 percent) but expenditures were not significantly different for long-term care. In contrast, the west was significantly lower for long-term care (27 percent) but was not significantly different for acute care. In terms of differences in spending across eligibility groups, expenditures in the east were higher than in the midwest for all groups. Expenditures in the south were significantly lower for the blind and disabled and AFDC groups because of differences in spending on acute care. Expenditures in the west were lower than in the midwest for all groups, but the results were significant at only the 0.10 level.

E. Conclusions

Several important conclusions emerge from these results. This section will provide a brief summary. First, both income and federal matching rates seem to have be important factors in explaining differences in state expenditures. The data set used here is such that the cross-section effects dominate the time series. Thus, it is risky to infer from these findings the impact of changes in explanatory variables on expenditures in the short term. If, however, we assume the short-term responses are consistent with the findings reflected in our cross-sectional estimates then some inferences can be made. First, the recession was probably more important than the matching rate reductions. This occurs for two reasons. One is that the reduction in income per taxpayer in 1982 was greater for the nation than the average reductions in matching rates. The other is that the income elasticities were larger and coefficients more stable than those for the matching rate.

Second, there is evidence that reductions in income affect both acute care and long term care spending. The effect of income on long term care spending was clear, with an elasticity of 1.0. The income effect is measured with less precision in the acute care equation because of multicolinearity. However, there is no reason to believe that income had less of an effect on acute care spending. It is likely that spending on both will be affected with declines in economic activity.

Third, reductions in federal matching rates also seem to reduce expenditures on both acute care and long term care. Again it is impossible to determine if the effects on acute care are different from the effects on long term care. Stated differently, higher matching rates result in greater Medicaid expenditures. There is no evidence that federal contributions wholly offset spending from states own revenues. However, since elasticities of Medicaid spending with respect to matching rates are less than one, reductions in federal matching rates are partially offset by increased state spending.

Fourth, the increases in underlying forces associates with time, e.g., increased willingness to expand the program, kept total real spending from declining as much as other factors would predict. Such underlying upward pressures offset the program dampening effects of income and matching rate reductions. The positive effect of time is predominantly associated with long term care, (e.g., the growth in ICF & MR´s, care for the mentally ill, etc.). Acute care spending was not affected by the time variable. The net result is that real acute care spending is predicted to fall by more in 1982 than real long term care expenditures. This is in fact what occurred; between 1981 and 1982, real acute spending fell by 2.9 percent while real long term care expenditures rose by 2.3 percent (nominal increases were 3.7 percent and 9.3 percent respectively).

On the acute care side, these results suggest that if OBRA policy changes which reduced eligibility and increased state flexibility affected aggregate state spending, they seem to have been offset by other influences, e.g., rising medical care prices. This does not mean that eligibility policy, alternative systems for reimbursing hospitals, case management initiatives, etc., were not important. They may have been important in two ways. First, as noted, state expenditures faced upward pressure from medical care price inflation. The fact that acute care expenditures did not increase in response to those inflationary pressures may be related to OBRA. Second, the OBRA legislation expanded the kinds of policy changes that could have been adopted in response to the recession or matching rate reductions. New policies could have been adopted in lieu of other policies that would have achieved the same spending objective. The result may be more efficient use of federal dollars.

Fifth, the results demonstrate the extremely important role of provider availability on program expenditures. Increased supplies of both physicians (and whatever they are a proxy for) and nursing home beds increase access and utilization. Providers undoubtedly also affect program policies. The supply of physicians in particular appears to be an extremely important influence on Medicaid spending. This is important in light of projected increases in physician supply.

APPENDIX A

Adjustments to HCFA-2082 Recipient Data

The Medicaid HCFA 2082 data revealed extreme fluctuations in recipient levels in certain states. These states generally varied across eligibility groups although Massachusetts, South Carolina, and Utah exhibited large percentage changes in all three categories. The magnitude of the recipient fluctuations in these states suggested that errors had occurred in data collection or recording. In an effort to more accurately reflect the true state recipient totals, certain adjustments were made to the data. The affected states are listed below by eligibility group:

Aged	Blind and Disabled	Children, Adults and Other Title XIX
Connecticut	Connecticut	District of Columbia
Delaware	Massachusetts	Massachusetts
Kansas	Mississippi	Michigan
Massachusetts	North Carolina	Oklahoma
Montana	Rhode Island	Oregon
Rhode Island	South Carolina	Pennsylvania
South Carolina	Utah	South Carolina
Utah	Washington	Utah
West Virginia		West Virginia
Wisconsin		
Wyoming		

In order to adjust the recipient totals in the above states, it was first assumed that the 1982 levels were correct. The 1981 recipient levels were then obtained by dividing 1982 recipients by the real percentage increase in expenditures from 1981-82 for the corresponding eligibility group. For example, in order to derive total aged recipients in 1981, total 1982 aged recipients were divided by the real percentage increase between 1981 and 1982 in expenditures on the aged. By extension, 1980 recipient totals were obtained by dividing 1981 recipients by the real percentage increase in expenditures between 1980 and 1981. 1979 recipient levels were calculated in the same manner. This technique implicitly assumes that the real rate of increase in expenditures is equal to the growth rate of recipients.

Due to erratic fluctuations in expenditures within eligibility groups between 1979 and 1981, recipient values for Massachusetts were adjusted in a slightly different manner. Examination of the data revealed a 55.97 percent annual rate of increase in Massachusetts per capita expenditures on the aged between 1979 and 1981. The data also showed a 12.04 percent annual decrease in per capita expenditures on the children, adults and other Title XIX group. Judging this discrepancy in eligibility group spending patterns to be a result of data collection or reporting problems, it was decided to adjust the expenditure fluctuations by redistributing 1979 spending between the two groups. The 1981 ratio of aged expenditures to expenditures on adults, children, and other Title XIX recipients was simply applied to the combined expenditure level of the two groups in 1979. The revised expenditure levels for 1979 were then used to calculate new recipient totals in the relevant eligibility categories. The same adjustment techniques applied to the other state data were used to derive new recipient levels, although the two year percentage increase in the price deflator between 1979 and 1981 was used to jump directly from the revised 1981 recipient total to the new 1979 total. This was done primarily as a shortcut since 1980 recipient values were not used in the ensuing analysis.

APPENDIX B

Medicaid Services Market

The demand for services by Medicaid eligibles depends on their demographic characteristics and Medicaid policies which affect the demand for care. Characteristics associated with ill health will raise use; those that lower the propensity to use services will reduce demand for services. For example, a younger Medicaid population will use fewer services than an older group. Likewise a rural Medicaid population will likely use fewer services than an urban population. Finally, utilization control policies such as preadmission screening, limits on visits, hospital days, prescription drugs, etc., will lower the demand for services. The demand for Medicaid services appears as in Figure 1.

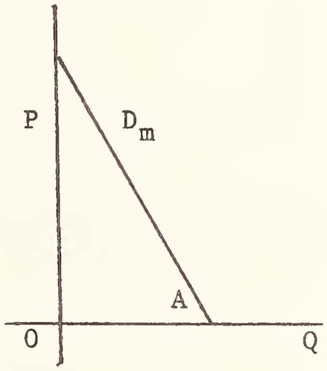

Figure 1. The Demand for Medicaid Services

For states with no co-payments, the demand for services will equal OA. Since most states do not impose co-payments, it is assumed for the sake of exposition that there are none. The demand curve, and thus the length of segment

OA, shifts with changes in population characteristics and Medicaid policies affecting demand. For example, a set of policies designed to control Medicaid utilization will shift the demand curve to left and shorten the length of segment OA.

The supply of services to Medicaid eligibles will depend on factors affecting willingness to supply services in general and factors affecting private demand. The quantity of services providers are willing to supply depends on input costs and the price they face. The Medicaid demand curve providers face is a horizontal line set at the price Medicaid programs are willing to pay. The length of the segment for an individual physician depends on competition, location, utilization controls, etc.

We follow the theoretical work of other researchers and assume that providers are price discriminators, with higher prices for private patients than for Medicaid patients.[1] Private demand also affects the supply of services to Medicaid. Because private prices are higher, private patients are more profitable and thus preferred. Thus under most conditions, the greater private demand, the less the supply of services to Medicaid. Factors such as age, health status, income, and insurance coverage also affect the private demand for services. The private demand facing the individual provider will also be affected by the availability of providers in general. The greater the supply of providers, the less the private demand facing each individual provider and the greater the willingness to supply services to Medicaid, ceteris paribus.

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[1] 1. Hadley, J., "Physician Participation in Medicaid: Evidence from California," Health Services Research 14 (4):226, Winter 1979, pp 266-280.

Scanlon, W., "A Theory of the Nursing Home Market," Inquiry (Spring 1980):24-41.

Sloan, F., J. Cromwell, and J. Mitchell, "Physician Participation in State Medicaid Programs," Journal of Human Resources 13 (supp.):211, 1978.

Sloan, F. and B. Steinwald, "Physician Participation in Health Insurance Plans: Evidence of Blue Shield," Journal of Human Resources 13:237, (Spring 1978).

This general model can be represented as follows.

(1) $Q_{DM} = f_1 (ELIG_M, UC_M, DEM_M)$

(2) $Q_{DN} = f_2 (P, DEM_N, Y_N)$

(3) $Q_{SM} = f_3 (R_M, P, MDS, HBEDS, NHBEDS)$

(4) $Q_{SN} = f_4 (P, P_I)$

where

Q_{DM} = the quantity demanded by Medicaid patients
Q_{DN} = the quantity demanded by private (all other) patients
Q_{SM} = the quantity supplied to Medicaid patients
Q_{SN} = the quantity supplied to private patients
$ELIG_M$ = the number of Medicaid eligibles
DEM_M = the characteristics of the eligible Medicaid population
UC_M = the number and stringency of utilization controls
P = private market prices
DEM_N = the demographic characteristics of the state population
Y_N = per capita income
R_M = Medicaid rates
MDS = physicians per capita
HBEDS = hospital beds per capita
NHBEDS = nursing home beds per capita
P_I = input prices

In general, there is reason to believe that for many program services, e.g., physician care, institutional long-term care, etc., Medicaid demand exceeds the amount providers are willing to supply at existing Medicaid reimbursement rates. This excess demand will not necessarily be eliminated by market forces or by public policy. In most economic markets, if demand exceeds supply, prices will rise leading to a decrease in demand or increase in supply and an eventual equilibrium. In the Medicaid market, price will increase only if the program is willing to increase reimbursement rates. Since this will increase total expenditures and reduce funds for other public services or force an increase in tax rates thereby reducing private consumption, states may be unwilling to increase reimbursement rates. They may be satisfied with excess demand and lower program expenditures.

Thus, we assume the private market equilibrates while the Medicaid market is likely to be characterized by excess demand for some services and equilibrate for others:

(5) $Q_{DN} = Q_{SN}$

(6) $Q_{DM} \geq Q_{SM}$

Medicaid expenditures can then be written as

(7) $X = R_M \cdot Q$

B. State Medicaid Spending

The missing link in this model is what determines the values states choose for R_M, $ELIG_M$, and UC_M. It seems reasonable to assume that state policies will depend on how much states wish to spend on Medicaid relative to other services. Once desired expenditures are determined, then a set of policies will be adopted to try to achieve that target. Of course, states may not have perfect knowledge of the effectiveness of alternative policies or there may be a lag in implementing policies and observing effects. Nonetheless, we assume that states will implement alternative policies until spending objectives are achieved. For example, we have argued that states can control policies which directly affect demand and supply as well as reimbursement rates. Utilization review policies can be tightened (eased), certificate of need moritoriums imposed (removed), and reimbursement rates reduced (increased) if states wish to lower (increase) expenditures on Medicaid.

How much a state wishes to spend depends on how it values Medicaid services relative to other services, its income or wealth (ability to pay), and the relative prices of Medicaid and other services. How a state values Medicaid relative to the full range of public and private goods and services that might be given up if more is spent on Medicaid is obviously a complex issue. For the purposes here, we assume there are alternative mixes of Medicaid services and other services which make the average taxpayer equally well off. These are represented by a standard set of indifference curves, as in Figure 2.

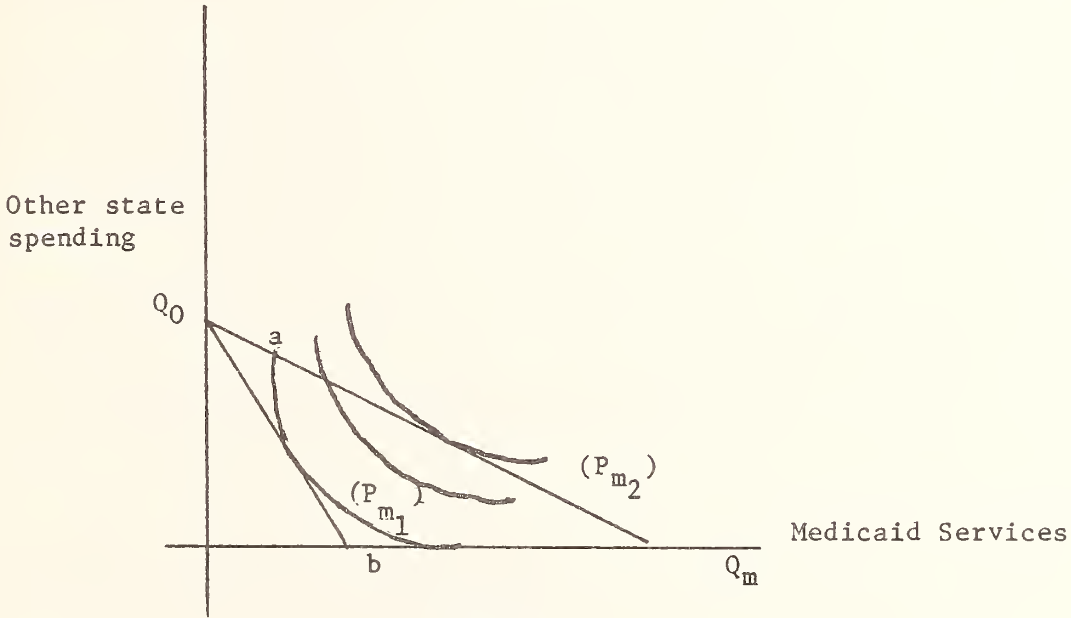

Figure 2

The state´s budget constraint is represented by ab. The equation for the budget line can be written as

$$Q_o = \frac{Y}{P_o} - \frac{Pm}{P_o} \; Qm, \text{ where}$$

Q_o = "other" goods purchased by the state

Q_m = medical services purchased by the state

Y = the state´s income constraint (budget)

P_o = the price of "other" goods

P_m = the price of medicaid services

Increases (decreases) in real income move this constraint upward, permitting more (less) of all services. Reductions in the price of Medicaid or increases in federal matching payments results in the state wishing to provide more services provided to Medicaid patients.

How states trade off Medicaid services for other goods and services depends on how highly valued those services are and the relative prices of Medicaid and other services. States may wish to spend more if the population is more in need, e.g., older, non-white, ill-educated, poorer, etc. Providers may also influence how much is spent. Physicians, teaching hospitals, nursing home associations, etc., may persuade decisionmakers that more should be spent on Medicaid, ceteris paribus.

Finally, because there are a complex set of regulatory requirements affecting the Medicaid program and because the role of providers in affecting utilization is so strong, states may have a difficult time achieving their Medicaid target expenditures. That is, they may spend more than they actually wish to spend. Medicaid regulations may make it difficult to contract when a state is faced with a decline in real income or a reduction in the federal match.

The result is that Medicaid policies depend on the amount the state wants to spend on Medicaid services as well as the characteristics of the market in which it purchases services. Medicaid expenditures will then depend on state per capita income, the federal matching percentage (the amount by which the price of Medicaid services is lowered to state taxpayers), state tastes or preferences and characteristics of the population the program could potentially serve. Medicaid expenditures are also likely to depend on provider availability, both because of their ability to influence the policy formation process and because of their effect on access of Medicaid patients to services.

The rest of the model then is

(8) $R_M = g_1 (Y_N, \text{FMATCH}, \text{REG}, \text{MDS}, \text{HBEDS}, \text{NHBEDS}, \text{DEM})$

(9) $\text{ELIG}_M = g_2 (Y_N, \text{FMATCH}, \text{REG}, \text{MDS}, \text{HBEDS}, \text{NHBEDS}, \text{DEM})$

(10) $UC_M = g_3 (Y_N, \text{FMATCH}, \text{REG}, \text{MDS}, \text{HBEDS}, \text{NHBEDS}, \text{DEM})$

where

FMATCH = the federal matching rate faced by the state

REG = the region of the nation (a proxy for regional differences in states' attitudes toward Medicaid).

In addition, since the private market is assumed to be in equilibrium we can solve for the private market price

(11) $P = g_4 (\text{DEM}_N, Y_N, P_I)$

We can then obtain a reduced form for equation (7) by substituting the exogenous variables in (8), (9), (10) and (11). The Medicaid expenditure equation can then be written as:

(12) $X_m = h_i\ (Y_N, \text{FMATCH}, \text{REG}, \text{MDS}, \text{HBEDS}, \text{NHBEDS}, \text{DEM}, P_I)$

Equation (12) provides a relationship between Medicaid expenditures and the policy variables of interest-income per taxpayer and the federal matching percentage, regional preferences, the influence of the states provider groups and the demographic characteristics of the states population. Because we are estimating a reduced form equation we cannot determine exactly how a policy variable such as income affects Medicaid expenditures, e.g., through its effect on state policy formation or through its effect on Medicaid demand, but can determine whether or not an effect is present.

APPENDIX C

Sources of Variables Used in Medicaid Expenditure Regressions

The data set used in the Medicaid regressions is composed of both calendar year and fiscal year variables. All of the Medicaid expenditure data were obtained from the HCFA-2082 data set and are broken down by fiscal year. The remaining variables, with the exception of the federal match, are calendar year variables. There is thus a nine month time lag between the dependent variables in the regressions and the independent variables. For example, an observation with the variable year equal to 78 includes calendar year 1978 and fiscal year 1979 variables.

Real net income per taxpayer was obtained in a stepwise manner. First, adjusted gross income, total income tax revenues, and total income tax returns were obtained from the annual Internal Revenue Service publication Statistics of Income. To derive net income, total income tax revenue was subtracted from adjusted gross income. Net income was then divided by the total number of tax returns in order to calculate net income per taxpayer. Real net income per taxpayer was obtained by dividing net income per taxpayer by the GNP implicit price deflator. All of the Medicaid expenditure variables were also converted into real terms using this deflator. The deflator index numbers were obtained from the Department of Commerce's Survey of Current Business. It was calculated using calendar year 1978 as the base year (i.e., the deflator is equal to 1.00 in calendar year 1978).

Demographic variables used in the regressions were located in several census publications. The percent of state population under 18 and percent of state population over 75 variables were calculated from totals listed in the 1980 Census of Population, General Population Characteristics. The percent urban variable was obtained from the 1980 Census of Population, Number of Inhabitants. Percent non-white was calculated by subtracting the total number of whites from the total population and dividing by the total population. These figures were obtained from the 1980 Census of Population, Supplementary Reports. The percent finishing high school was located in the Statistical Abstract of the United States. All of these variables have only 1980 values so there is no variation across time.

The number of physicians per state was obtained from the July 1982 version of the Bureau of Health Professions Area Resource File. The number of physicians was divided by the state population and multiplied by 10,000 in order to derive the number of physicians per 10,000 people, the variable used in the regressions. State population totals were located in Bureau of Census Current Population Reports.

The number of hospital beds per state was compiled from the 1978 through 1981 American Hospital Association annual surveys. These totals were also divided by the state population and multiplied by 10,000 in order to obtain the number of hospital beds per 10,000 people. In addition, the number of nursing home beds per 1,000 residents aged 65 and older was obtained from the 1980 Census of Population, Supplemental Reports

The Medicaid federal matching rates were obtained from HCFA. The fiscal year 1982 values were adjusted to reflect the reductions in the rates imposed by the 1981 Omnibus Budget Reconciliation Act.

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